THE GHANA PHARMACEUTICAL JOURNAL

OFFICIAL ORGAN OF THE PHARMACEUTICAL SOCIETY OF GHANA

Volume 9 No. 2 December 1986

THE GHANA PHARMACEUTICAL JOURNAL

NATIONAL HEADQUARTERS OF THE PHARMACEUTICAL SOCIETY OF GHANA
SOCIAL ADVANCE INSTITUTE BUILDING
P. O. BOX 2133, ACCRA

Vol. 9 No. 2 *DECEMBER* 1986

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The Ghana Pharmaceutical Journal is published quarterly by the Pharmaceutical Society of Ghana at the Social Advance Institute, Accra. Correspondence concerning editorial contents and advertisements should be addressed to: The Editor, Ghana Pharmaceutical Journal, P. O. Box 2133, Accra, Ghana. * All materials intended for publication should be submitted typewritten, in double line spacing on one side of the paper. Materials accepted for publication may be subjected to editorial revision and, in the case of original papers, once they are published in this journal they cannot be published elsewhere except by agreement. Authors should conform with current style in the presentation of papers, indicating where tables and figures should be inserted. * Views expressed by contributors do not necessarily reflect the opinion of the Editor. * Partial or total reproduction of the contents of this issue in any manner or form is prohibited.

Printed by Nsamankow Press, Accra-North

DIAGELLATES

LIQUID EXTRACT

Composition:

Average Constituents per 100ml: Dried Ext. of Psidium guajava Linn. 1gm. Cineole 18mg. Tannin 407mg. Resin 157mg. Ol Citronella, Sucrose.

Indication:

In Colic, flatus, mucoid stools associated with intestinal flagellates, Giardia or Lamblia intestinalis. In diagnosed Peptic ulcer (Gastric and duodenal), Entamoebic dysentry and in diarrhoea of non-specific origin. In poisoning due to heavy metals, alkaloids and alcohol.

Action:

The resin expels flatus and has antiseptic properties on the gastro intestinal tract. The astringent and styptic effect of the tannins enable Diagellates to mobilise the cells in the broken mucosa to promote healing of the ulcer. In poisoning due to heavy metals and alkaloids Diagellates may be of value as an antidote but is by no means a substitute for lavage and other forms of therapy since the precipitated tannates may re-dissolve and the poison absorbed. If Diagellates is administered in the recommended dose in the absence of diarrhoea no constipation results.

Posology:

Babies: 1 to 3 months	2.5 ml.
Infants and children up to 5 years	5ml.
5 to 12 years	7.5 ml.
Adult over 12 years	10 ml.

To be taken four times daily before meals for 5 days. In Peptic ulcer the same dose to be taken for two weeks, and the Course may be repeated if necessary. In dysentry diarrhoea and poisoning double the above dose.

Overdose:

There are instances where a single dose of 50ml. as a full Course has been administered without any adverse effect but there is the need to follow this with smaller doses to ensure total elimination of the flagellates. Never exceed 150 ml. as a single dose as this contravenes B.P. ppecification for tannis.

Side Effects

Ill effects have not been reported. Diagellates is devoid of the occasional unpleasant side effects of Metronidazole.

Storage:

The mucilage arising out of occasional occurrence if gum-resin may separate on standing so shake the extract before use.

Note:

As safety in Pregnancy has not been established it is advisable to avoid taking the drug during the first trimester of Pregnancy. Concurrent administration of iron and alkaloids are to be made with care as Diagellates impedes their absorption. If watery diarrhoea persists with the administration of Diagellates add Kaolin or Calcium to help form the Stool.

Medico-Pharmaceutical Investigation Continues in Collaboration with the Faculty of Pharmacy, U.S.T., Kumasi.

Cis Pharmacy,
P.O. Box 660,
Dansoman Estates
Accra, Ghana.

Situated:
Odorkor No. 2 Junction,
Kaneshie-Winneba Road
Accra

Editorial

A Necessary Transition

AT the official opening of the 5th Scientific Seminar of the West African Pharmaceutical Federation (WAPF) held at Kumasi, PNDC member Mrs Aanaa Enin reiterated government's intention to keep the people in good health saying it was prerequisite for any economic growth. In our opinion, a more sound argument than this cannot be advanced, and we are informed that the same thinking holds in the case of the other states within the Federation.

And since it is almost impossible to carry out any meaningful health plan without drugs and other pharmaceuticals being readily and adequately available, these governments have been expending, on the average, no less than 60% of their total health budget—itself being a big fraction of total state expenditure —on the importation of finished drug products.

But in view of the escalating cost of imported drugs and the diminishing foreign exchange earnings being experienced by countries in the sub-region, one wonders whether this situation can be endured any longer. The G.P.J. feels it is NOW imperative that we look seriously into the only option left of satisfying our drug needs—the development of substitutes for imported drugs from local sources.

In the sub-region, we have enough of basic raw material and the personnel needed to convert these crude substances into processed feeds for our industries. According to Prof. Dr. Dwuma-Badu (U.S.T., Kumasi) active principles which can treat some of our most troublesome ailments like malaria and the sickle-cell disease, just to mention a few, are readily available locally.

Prof. B. Obiora (University of Benin, Nigeria) contributing to a symposium at the seminar said almost all of the excipients needed for the preparation of the usual dosage forms abound here.

Against this background, what excuse do we have for allowing such huge sums of money to be siphoned out of our respective countries in the manner described earlier?

A transition definitely must be effected, and we would like to include here some suggestions we believe could bring about a smooth change over.

Government in the sub-region must resolve to embark on a meaningful pharmaceutical industralization.

They must provide essential infrastructural facilities such as water and electricity, and also their policies must be seen to be consistent and aiding local production — greater restriction on importation of finished products and more favourable transfer of technology arrangements, always bearing in mind that we are at the receiving end.

Again governments must raise grants they give to research centers while taking steps to adequately compensate traditional medicine men, who invariably feel their means of livelihood threatened when they give out secrets concerning sources of medicinal principles and formulations incorporating these.

Pharmacists in the sub-region, for their part, must intensify their research efforts and freely circulate findings thereof. Not only should medicinal plant farms be set up to facilitate collection of their produce but also a West African Pharmacopoeia ought to be brought into being.

In conclusion, we would like to emphasise that it is incumbent on governments, pharmacists and other scientists in the sub-region, more than ever before, to use what local technology is available, supported by imported technology to produce cheaper and yet effective medicines from our God-given primary materials. In so doing, they shall not only be making more funds available for use to finance other essential development projects and thereby fulfil to a large extent the wishes

and aspirations of our peoples, but also be giving posterity the opportunity to say that this generation "did just what was required of them."

If pharmacists are vital for success to be achieved in this direction, so also are other professionals and scientists in the health care delivery system. There is the need for these different specialized personnel to work harmoniously together to conduct clinical trials and to attempt to detect both short and long term side effects that may emanate from the use of such locally produced drugs.

The "Gross Injustice"

GHANA, like most countries (be it either developed or developing), spends about 10 % of its national budget to provide health care for its citizens.

But here in Ghana, and invariably in other developing countries, this portion of the national cake is in reality used to provide health services to privileged citizens residing in the urban areas and form roughly only 30 % of the population.

The vast majority of the popultion - a good 70 % - is left at the mercy of drug peddlers and quack doctors and yet it is this group that provide the bulk of the labour that go into generating the nation's wealth.

It was natural and appropriate therefore, that the participants to this year's Annual General Meeting of the Pharmaceutical Society of Ghana held at the Hotel Eredec, Koforidua, from September 4-6, described the present health care delivery system as a "gross injustice against the rural dwellers".

This prevailing tendency must be reversed.

From the point of view of the conference, the sole means by which pharmacists can help correct this "gross injustice" being perpetrated against the rural folks is by "Extending Qualified Pharmaceutical Services to the Rural Areas", and this one way, it resolved to take.

Having wisely decided to take upon themselves this onerous job, Pharmacists must start working without wasting any more time to accomplish this mission.

From the deliberations of the conference, it was clear that three bodies would have to contribute towards achieving this noble objective and these are: firstly, the individual pharmacist; secondly, the government; and lastly, the pharmaceutical society of Ghana.

The pharmacist must harness the moral will needed to actually move out individually or extend an already existing pharmaceutical set-up over which he has control - a retail outlet, for instance - from the cities where over 80 % of pharmacists are resident and operating to the rural areas to render services there.

The government must on its part muster the moral and political will to improve the terms and conditions of service of pharmacists and also enact new laws which would give incentives to those pharmacists willing to go rural. Infrastructural facilities leading to and within rural areas must be rehabilitated, and in cases where they are absent, put in place.

The Pharmaceutical Society working in team with the Pharmacy Board will have to supervise the implementation of the plan.

Let these three bodies play their separate roles in the way expected of them and let the other branches of the Health Care Delivery Team also decide to embark upon a similar project of extending their respective qualified services to the rural areas and the nation shall witness the fulfillment, and its citizens enjoy the fruits, of providing health for all by the year 2000.

Let's Save the 'Gaint'

by "PHARMACUS"

THE Beninois observers to the 5th Scientific Seminar of the WAPF described it as being *"Merveilleux"* and the somewhat dilapidated "matchbox" nearby, to a large measure, served to underline its imposing built. The truth is, the view held by many is that the sight of the new, giant Pharmacy Building is gratifying. I do share in this view, and would like to add further that the inside of two rooms within the building I happened to see were even more so.

The first of these was the Dean's office. What immediately struck the visitor to this room was the harmony that existed between the colours in the office. The wine-coloured settee did not only match with the maroon colour of the posh carpets covering the entire floor of the office but also harmonized with the chocolate shade of the curtains.

In one quadrant of the office, diagonal to the one on which the entrance door opened, stood an averagely loaded escritoire, and the dark brown executive chair to go with this magnificent structure appeared to provide the comfort needed by the Dean to go about his heavy day to day administrative duties.

The second piece was the Conference Room. In the middle of this room are installed two joined tables whose design and strength imparted to them an amazing beauty and which were surrounded by twenty lovely chairs. These in turn, stood on two oriental, predominantly wine-coloured carpets also joined together.

Prof. D. Dwuma-Badu, Dean of the Faculty, informed me "the WAPF Executive got a fine impression of our conference room", and added that, "at the appropriate time, pictures of all former Deans will be hanged on the walls of this room".

The Dean expressed his deep gratitude to those companies and individuals who have contributed so much to lending a first-class touch to his office and the conference room of the Faculty saying these "pharmacists and pharmaceutical companies make the faculty proud".

According to Prof. Dwuma-Badu the settee, carpets and curtains in his office were provided respectively by Ashanti Pharmacy, Wrosbon Pharmaceuticals and Juliponia Pharmacy, while, the executive chair was dona-

ted by Flamingo Pharmacy. The tables and chairs as well as the two oriental carpets in the conference room were all donated by Kanbros Pharmacy.

The Dean did not fail to also thank the Pharmaceutical Society of Ghana (PSG) for the handsome amount of C250,000.00 it gave to the Faculty during the dinner organised to round off the activities marking the Golden Jubilee Celebrations of the PSG.

In contrast to the happy mood in which the Dean talked about this aspect of the faculty, he lamented over the lack of adequate equipment and chemicals needed to train more pharmacists with the right calibre.

Mentioning the promises made by Mr. Opoku-Acquah, (John Lawrence Chemists Limited), Mr Ohene-Manu, (Oyster Chemists Limited), Mr E. O. Gyamfi, (Bikkai Pharmaceuticals Limited) and the GIHOC Pharmaceuticals Limited to contribute towards improving conditions in the faculty — and expressing his conviction that they will fulfil these — he appealed to other companies and individuals to equally give practical assistance to the Faculty which, after all, have made them (the latter group) what they are today.

I feel this appeal by the Dean is a big challenge to all of us and must be heeded to with all the seriousness it deserves; we cannot afford to sit idly by whilst our "Mother" slowly looses her dignity.

In any case, I am not scared, for pharmacists and drug companies, as the past tells me, have always lived up to expectation, when it came to donating towards a good cause.

Surely, they cannot treat this case differently.

The "giant" must be saved at all cost!

LETTERS to the editor

Weekend Pharmacy

SIR,

Like many other people, there have been several occasions on which I have had the need to purchase one kind of medicine or the other on a week-end, particularly on Sundays, but was not able to do so because not a single pharmacy was in business then.

I am of the opinion that it is the duty of pharmacists to render service to the community not only on weekdays but on week-ends too in so far as there arises the need, every now and then, to buy drugs on these days.

I hope our medicine men will take note of this and arrange to keep some pharmacies open during weekends as practiced by the Francophone West African States.

Miss Elizabeth Fosu-Annan
Pharmacist Houseman
Korle-Bu Teaching Hospital
Accra.

* * *

Pharmaceutical Exhibition

Sir,

Please permit me to congratulate the Planning Committee of the Golden Jubilee Celebrations and, indeed, the whole membership of the Society for their commendable turnout at all the activities marking the celebration. There is one particular activity I wish to comment on.

I am obliged to say that the Pharmaceutical Exhibition held at the Exhibition Hall of the State House did impress me very much. The display of a mixture (blend) of orthodox medicinal products, either imported or produced locally, and traditional medicines at the exhibiton was a pointer to the orientation of Pharmacists of this country to exploit and utilise to the full the two types of medicines for the benefit of our people.

A good precedent has been set and it is my sincere wish that this sort of exhibition is held annually to accelerate our effort to achieve drug sufficiency since it will serve us a platform for researchers to show progress they have made in their researches. It will also offer opportunity for representatives of foreign drug manufacturing firms to display and advertise old and new products from their companies.

M. W. K. Norgbey
Kingsway Chemists, Div. of U.A.C.

* * *

Blood Pressure Checks

Sir,

I would be most grateful if I could be clarified on a few matters that are coming up in general practice Pharmacy.

Lately, some Pharmacies are advertising that they do blood pressure checks while others claim they conduct pregnancy tests.

I am aware that in some countries Pharmacies are permitted to conduct pregnancy tests but I am not sure I have come across a place where blood pressure checks are conducted.

Candidly, I have nothing against pregnancy tests being conducted but I am not very sure I feel that comfortable about taking blood pressures.

I should be most grateful if my memory is refreshed on the state of the law as regards these matters.

Mr. Emmanuel Agyarko
Union Medical & Pharm. Ltd.

* * *

The Journal

Sir,

The presentation of the last issue of the Ghana Pharmaceutical Journal (GPJ) is a sure indication that the editor and his editorial staff mean business—regarding the publication of a standard professional Journal.

It is my fervent hope that the Journal has indeed been given "a new lease of life" and that from now on its appearance is going to be regular as expected.

In the light of the foregoing, I would like to sieze this opportunity and appeal to members to contribute towards the publication of the Journal by writing more articles—the one way in which they can help.

Meanwhile, I would also like to know from the Committee if articles on other subjects apart from Pharmacy are accepted for publication.

George Lartey
Lorne Pharmacy
Accra.

EDITOR'S NOTE:

It is our wish to create an enviable position for this journal and as the writer rightly put it, members can help immensely in the realization of this objective by writing more articles. Topics may be on pharmacy, the sciences in general, as well as on any other subject. For example, one may impart his or her knowledge in history, geography, economics or managements to, or share their experiences from a travel within or outside the country with fellow pharmacists.

Contributions expressing ones views on current political, social or economic issues affecting the Pharmacy Profession are also welcome.

Finally, it is worthy to note that regular and prompt payments of retention fees are equally essential to the publication of the Journal and members would do well to assist in this way too.

* * *

Adibo's Observation

Sir,

The People's Daily Graphic issue of Monday, August 11 contained a story in which Dr. Adibo, the Director of Medical Services, was reported to have said that the shortage of pharmacists in government hospitals is due to the "get-rich-quick attitude of the pharmacist" who prefered to work in the private sector where they can take on more than one job.

For such an utterance to come from one so high up in the hierarchy of the Ministry of Health is highly regrettable. This is so because Dr. Adibo appears not to appreciate the causes of problems facing the Ministry and is therefore not in the position to contribute towards solving them.

I am myself not in the employment of the government and chose the private sector because in my opinion —and indeed, that of many others in this sector — of the three bodies comprising the Health Care Delivery Team, the Pharmacy Profession is the one most ill-catered for when it comes to terms and conditions of service.

Apparently, the professional status of the pharmacist is not recognized by the Ministry which is probably why he is denied professional allowance — something enjoyed by his counterparts in the other professions. And while his colleague resident doctor without a car gets in lieu of this a kind of "petrol allowance", how the pharmacist gets to and leaves his post each day is none of the business of the health authorities.

Whenever the pharmacist is forced into doing overtime — including week-end duties — he is not compensated for but under the same circumstances, the doctor or the nurse is adequately rewarded.

This is not all, for if the Ministry appreciates the importance of the pharmacist in the Health Care Delivery System, I am certain it would neither glaringly discriminate against him in the areas of accommodation and car distributions nor unnecessarily delay his promotion as these only serve to frustrate him.

Surely these few examples of the way the Ministry treats valuable people like pharmacists are more than enough to discourage freshly qualified pharmaceutical personnel from entering into government employment when the private sector is always ready to accord to them their full "rights".

Perhaps the Director must also be made aware of the fact that pharmacists in the private sector work hard from morning to evening and can therefore not afford to take on a second job as he is wrongly assuming.

Oscar Bruce
Dabovek Ltd.
Accra.

Approved

Under the above heading we intend, from time to time, to bring to the notice of members some propriatary drug products that have recently been approved for use in the country by the Drugs Committee of the Pharmacy Board. We begin with the following:-

Ebrantil Capsules
MANUFACTURERS :Byk Gulden, D-7750 Konstanz, West Germany.
LOCAL AGENTS: Pharmahealth Center, P.O. Box 9507 (Airport), Accra.
CLASSIFICATION: A

Riopan Tablets
MANUFACTURERS: Byk Gulden, D—7750 Konstanz, West Germany.
LOCAL AGENTS: Pharmahealth Center, P.O. Box 9507, (Airport) Accra.
CLASSIFICATION: C

Rinomer Tablets
MANUFACTURERS: Janssen Pharmaceutical Beerse, Belgium.
LOCAL AGENTS: City Chemicals and Pharmaceuticals Limited, P. O. Box 1183, Accra.
CLASSIFICATION: C

Rengasil Capsules, Injectable
MANUFACTURERS: Ciba-Geigy Ltd., Switzerland.
LOCAL AGENTS: Reiss and Co. (Gh) Ltd., P.O. Box 3074, Accra.
CLASSIFICATION: A

Entero-Sediv Tablets, suspension
MANUFACTURERS: Grunenthal GMBH, Stolberg/Rhld, West Germany.
LOCAL AGENTS: Pharco (Gh) Ltd., P. O. Box 1441, Accra.
CLASSIFICATION: C

Conceptrol Tablets
MANUFACTURERS: Ortho Pharmaceuticals Corp., U.K.
LOCAL AGENTS: E.B. and Co., Ltd., P. O. Box 14090, Accra.
CLASSIFICATION: C

Augmentin Injectable, syrup
MANUFACTURERS: Beecham Research Labs., England.
LOCAL AGENTS: Gregorio's Medical Promotions, Accra.
CLASSIFICATION: A

Fenbid Capsules
MANUFACTURERS: Smith, Kline and French Labs., England.
LOCAL AGENTS: J. L. Morison, Son and Jones (Gh) Ltd., Box 336, Accra.
CLASSIFICATION: A

Metrolag Injectable
MANUFACTURERS: Lagap Pharmaceuticals Ltd., England,.
LOCAL AGENTS: Polafco (Gh) Ltd., Box 3387, Accra.
CLASSIFICATION: A

AGM

The 1986 Annual General Meeting of the Society was held at Eredec Hotel Koforidua from September 5 – 6

Improving Upon Traditional Medical Practice...a must

Delivering the Opening Address, the PNDC District Secretary for Akropong Mr T. K. Okae who represented the outgoing PNDC Eastern Regional Secretary said Traditional Medicine will always go side by side with Scientific Medicine and on account of this it was not only desirable but also obligatory, that traditional medical practice should be improved upon. The Secretary stated that it had always been the aim of the PNDC Government to ensure that the rural dwellers of this country who actually generated the bulk of the country's wealth and who represented about 80% of the population of this country should be covered with adequate health care.

He said the Government was handicapped by lack of adequate resources in this objective and consequently our rural dwellers have depended and continued to depend heavily on traditional medicine. Mr Okae noted that as the President of the Society rightly said, every town and village cannot benefit from the Professional knowledge of a community pharmacist, because the nation's human and material resources will not permit such an achievement. Moreover some of our people have become so used to traditional medicine that given the option they would prefer to go by traditional medicine rather than scientific medicine.

"It is against this background that I would like you to focus the thrust of your deliberations. I believe that the rural areas which you intend to cover now are the stronghold of the traditional medical practitioners obviously because of the absence of qualified pharmaceutical services. I therefore wish to exhort you to work closely with the Ghana Psychic and Traditional Healers Association so that your efforts to provide service to the rural areas are not thwarted by unscrupulous herbalists. I wish to stress that since the Psychic and Traditional Healers Association are already deeply entrenched on the ground, it would be expedient for you to bring your professional knowledge and experience to bear on their work. If you decide to work at parallel lines with each other, then I am afraid, there will be very little good results, if any."

The Secretary also said, it was disturbing to note that most of our pharmacists, trained with the tax payers money choose to work in the private sector rather than in the Government Hospitals and Clinics. The reason for this he declared, being the attractions of higher financial gains. "The Good Lord says, man must not live by bread alone. The on-going process demands of pharmacists self sacrifice and selflessness to render services to the governmental hospitals, clinics and health centres which indeed need your services. Some of your members who accept to work in government hospitals even refuse to work in the rural areas because the attractions of urban life will elude them. Since most of the private pharmacies and drug houses are located in the cities where health facilities already exist it is only logical that you should accept to work in the rural areas where government hospitals and clinics can hardly satisfy the health needs of the people," he said.

The Secretary observed that another area of concern is the tendency for some pharmacists in the Private sector to collude with proprietors of drug houses to undertake fraudulent deals which result in proliferation of drug peddlers all over the country. He said most of these peddlers present drugs for the treatment of diseases which have no relevance to patients ailments. He wished that the Pharmacy Board will deal drastically with any pharmacist who is found to be involved in corrupt practices.

o O o

REST ALONE IN PEACE

A well-known American movie actress died in an accident and her numerous friends got together to hire the country's highest paid poet to compose an epitaph for her. When the stone was laid, across the top in Old English letters were the words: "At last she sleeps alone".

AGM

The President's Address

The Hon. PNDC Secretary for the Eastern Region, Nananom, Honourable guests, distinguished Ladies and Gentlemen, fellows and members of the Pharmaceutical Society of Ghana, it is with the greatest sense of pleasure and pride, that on behalf of the National Council, I welcome you to yet another historic Annual General Meeting of the Pharmaceutical Society of Ghana. This year's meeting is historic not only because this is the first time that in the Society's 51 years of existence, it is holding a National Meeting in the Eastern Regional Capital, but more importantly, this is the first time that an Annual General Meeting has been convened with the express purpose of concretizing our often expressed desire and aspirations of providing qualified pharmaceutical services to the rural populations of this country whose toil and sacrifices have made us what we are.

Hon. PNDC Secretary, distinguished Ladies and Gentlemen, in November last year during the 50th Anniversary Celebrations of the founding of the Pharmaceutical Society of Ghana we made a promise that, we as Pharmacists are going to participate actively in the Government's Primary Health Care Programme which aims at Good Health for all by the year 2000. Ladies and gentlemen, permit me to re-state the pledge we made to the Nation last November, and I quote:

> "... We will continue to encourage pharmacists to make their professional services available to a greater majority of our people. This will mean the siting of new pharmacies away from the Urban Centres ... Although every town and village will not benefit from the professional knowledge of a community pharmacist by the year 2000 because the nation's resources, both human and material would not make this possible, we believe that if in concert with government and other interested organizations, we are able to have 2 new pharmacies per year opened in each of the ten regions of the country to serve at least the District centres and towns where there are District Hospitals and/or Health Centres and Clinics, some 300 such towns and their surrounding communities will benefit from qualified pharmaceutical services by the year 2000."

When we made the pledge we cited communities in large towns like Bolgatanga, Navrongo, Bawku, Wa, Berekum, Techiman, Goaso, Yeji, Dormaa-Ahenkro, Swedru, Saltpond, Winneba, Worawora, Kete-Krachi, Kadjebi, Sefwi-Wiawso, Tarkwa, Bekwai, Konongo, Agogo, Mampong - Ashanti, Juaben, Mpraeso, Akropong-Akwapim, Kibi, Donkorkrom, Asamankese, Somanya and Akosombo as not having easy access to pharmacies. Not only do these communities lack pharmacies in the private sector but even in those of them where there are government hospitals and/or Health Centres, there are no pharmacists to take charge of the Dispensaries eg. Kibi, Nsawam, Akuse, Suhum, Saltpond, Tarkwa, Dunkwa-on-Offin, etc., Ladies and Gentlemen, I am glad to report that since then a beginning has been made and Berekum, Mampong-Ashanti, Bolgatanga, Wa and Swedru now receive the services of qualified pharmacists.

The National Council of the Pharmaceutical Society finds it untenable that out of 315 registered pharmacies in this country 180 are located in Accra/Tema alone, Ashanti Region has 83 with 78 of them located in Kumasi, the Western Region has 17 all of which are located in Takoradi, Central Region 6 with 4 in Cape Coast, Brong-Ahafo 2 in Sunyani and 1 at Berekum. Hon. PNDC Secretary, Ladies and Gentlemen I am sure that you will be happy to know that compared with the other regions the Eastern Region has the best spread or more even distribution of pharmacies.

The Region has 18 pharmacies and only 7 are located in Koforidua with the others spread out to Akim Oda (2) Nkawkaw (2) Nsawam (3) Suhum (1) Asokore (1) Effiduase (1) Akim Tafo (1) but I am certain this is still cold comfort to you Mr Secretary because several other communities in your region eg. Afram Plains, the Akwapim and Kwahu Ridges, West Akim District and the Krobo area still have to contend with quack doctors and drug pedlars.

The Pharmaceutical Society of Ghana is well aware that our rural folks can no longer wait for more pharmacists to be trained before they have safe access to drugs and pharmaceuticals and therefore, we are making effective contribution to the Primary Health Care Programme by providing health education not only to the members of the public but we are training the ubiquitous chemical seller in the proper storage, distribution and use of those medicines which are in every day use and he is permitted by law to handle. Such training programmes have already been organised in the Ashanti and the Upper East Regions. We will continue through public education programmes to protect the interests of the public against the indiscriminate use of medicines especially those which are offered to them by unscrupulous chemical sellers and quacks as "cure all ills". Indeed as we sit here, students of Pharmacy from the University of Science and Technology, Kumasi under the sponsorship of the Pharmaceutical Society of Ghana have mounted a Drug Safety Campaign and they are visiting the rural areas of Greater Accra Region to provide education on the safe use of drugs and they are expected to move to other regions after Greater Accra.

Distinguished Ladies and Gentlemen, we are meeting in the Eastern Regional capital this week-end to evolve strategies which will accelerate the pace to enable us achieve our objectives under the theme "Providing Qualified Pharmaceutical Services to the Rural Areas" and in this

we need the good-will and assistance of all our people. Indeed the task is a difficult one but we cannot break faith with the people because we made a promise last year. The National Council of the Society believe that we can forge, ahead and break new ground so let us with dedication and zeal start this year's Annual General Meeting with the determination to succeed because it is only by making our professional services available to our rural communities that we can justify our claim as custodians of, and experts in the use of drugs and also give more meaning to our motto: "Friend to Mankind".

Mr Hon. PNDC Secretary, Distinguished Ladies and Gentlemen, Nananom, Fellows and Members of the Pharmaceutical Society of Ghana, once again on behalf of the National Council of the Pharmaceutical Society of Ghana and in my own name I welcome you to this challenging Annual General Meeting.

Thank you.

AGM

Symposium on :

Extending Qualified Pharmaceutical Services to the Rural Areas

1. An Academician's View

By Prof. ANSA - ASAMOAH, M.P.S.GH.

INTRODUCTION

It is no coincidence that this symposium is taking place outside the capital and at Koforidua, the heart of rural and agriculturally orientated Eastern Region. The Pharmaceutical Society of Ghana and the organisers of this meeting must be congratulated for their initiative and thoughtfulness in selecting this topic and I believe at the end of the day the final communique if implemented by ALL, i.e. members of the Society, Director of the Pharmaceutical Services and his staff, the Registrar of the Pharmacy Board and his assistants and supported by medical practitioners in this country, and the Ministry of Health, will eventually help improve health care services in this country, make it more accessible and affordable to majority of our people.

Definition and Scope

I think before I start messing up with the topic, we should try and define its scope, state the problem and help evolve a solution.

The word extend implies the stretching out of an already existing health facility — in this case a pharmaceutical service, or the enlargement of an existing scope or to hold out some valuable that one possesses i.e. a service — to others e.g. people in the rural areas. The implications of this World Book definition is that what we intend extending must be healthy, in a restricted area and not in abundance but must be stretched out — again implying a form of sacrifice or service on the part of the giver— and in other words a recipient—the one we hold out to — a rural Ghanaian. We should all start thinking of how to stretch out hospital and retail pharmacy facility in the country.

Rural means country or something characteristic of the country as opposed to the city, and what makes up a country is not the foreign exchange but its people. With the exception of Accra and Kumasi which may be considered to be cities with something near-adequate pharmaceutical service — almost 80 % of pharmacists are resident and operating in these 2 cities. Imagine a population of 14 million people as per the 1985 census figure. I believe not more than 4 million reside in the two cities.

According to the 1985 list of registered pharmacists totalling 497, those involved in wholesale and retail are 352; the rest are in hospital and other areas. Out of this number 300 serve less than 4 million inhabitants of the two cities leaving only 52 for the remaining 10 million country dwellers. What a social justice?

To emphasise the skewed nature of the distribution pattern of pharmacists in this country, let us consider the regional distribution. Greater Accra 216 or 61.4%, (only 4 at Tema), Eastern 19 or 5.4%, Ashanti 84 or 23.1%; Central and Volta 5 each or 1.4%; Western 17 or 4.8% B/A and the North 3 each or 0.85%. There is not a single registered pharmacy premise in either the Upper West Region or Upper East Region. To make the distribution more disturbing is the fact that all these premises, with the exception of the Eastern Region are in the regional capitals.

I believe one of the problems in this country which has been responsible for our socio-economic setbacks is overcentralisation and not until

we decentralise administration in all sectors of the economy including health, we shall continue to be unproductive because majority of our people in the rural area are denied important ingredients necessary for development.

Isn't it ridiculous that decisions taken about rural activities involving Timber, Cocoa, Shea butter, Agriculture, Health, Irrigation, import licence, etc. are taken outside their operational locations and without involving the rural folks. For example the Head Office of the Rural Bank is in the only city — Accra.

Even we find in our society today absentee chiefs and absentee farmers. Enlightened and influential people in society who have been entrusted with rural responsibility as chiefs have migrated into cities to enjoy good life leaving their people in the dark. Such is the problem of trying to extend any service to the rural folk.

Pharmaceutical Service: The manufacture, procurement, storage, distribution, sale and dispensing of pharmacologically active medicaments for internal or external use by qualified and registered pharmacists in a registered premise according to the Pharmacy and Drugs Act 64 1961 constitute a pharmaceutical service. This is the facility we intend stretching out to reach people in all the country.

Problem

As a young man immediately and long after independence, the commonest political, religious, elite and most progressive slogan on any platform — you will recall — was "go back to the land" i.e. rural.

Those who shouted the loudest did nothing but expected others who were poorer to go and toil on the land to feed them in the cities. I believe you and I are not going to behave that way. If we really mean what we are discussing today i.e. extend pharmaceutical services to the rural areas then:-

1. Let us see an Oyster, or John Lawrence at Atuabu in the Nzema area; let those of us who are shouting the loudest go rural to set the example for the younger ones to follow.
2. Let us arrest immediately and I mean immediately the registration of Pharmacy and Chemical Sellers' premises in all the Regional capitals. Infact the alarming rate at which these premises are springing up in the cities queries the existence of the Pharmacy Board, or its control over registration of such premises.
3. I wonder which pharmacy establishments always get the import licence? Is it not those city pharmacies in Accra and Kumasi? As a further proof of our willingness to go rural and as an incentive I challenge the Ministry of Health and those responsible for drug import licence allocation to give 60-80 % of its drug import licence allocation to pharmacies operating in rural areas. I understand this year a team of medical personnel inspected some pharmacy shops for the purpose of recommending some for import licence allocation. I consider this as unfortunate indeed. As a registered and practising pharmacist and the Head of Pharmacology in the only Pharmacy School in this country, I would like to correct an erroneous impression created and nurtured in certain quarters in this country particularly in the Ministry of Health that Clinical Pharmacology is Pharmacy and would like to state and emphasise that Bioavailability, Pharma — cokinetics and Quality Control which are all important factors for determining and regulating drug imports are the pillars and prerogative of the pharmacist. These specialist pharmacists are available at U.S.T. in Kumasi and I have the permission of my Chief Executive to offer our free service to the Ministry of Health on drugs at anytime.

Recommendation

As pointed out earlier, before anything can be extended or stretched out, you must possess it. I doubt whether the quality of pharmaceutical service available to date is even suitable for extension and will recommend a general improvement prior to its extension. You are all aware of the four major areas of pharmacy practice — academic, industry, retail and hospital.

I will start first by taking the beam from my eyes — academic. (*i*) *Academic:* By transferring the Dispensing School from Accra to Kumasi, the first act by which academic pharmacy were to go rural took place. The Faculty has been very sensitive to views expressed by employees about the quality of its graduates and has always incorporated these suggestions in its training programmes that has led to the introduction of courses such as Pharmacy Management, Social Pharmacy and Chemical Pathology which has resulted in considerable improvement in the quality of our graduates. As a further improvement based on your suggestions and trends in pharmaceutical education in other developed countries, U.S.T. is contemplating the introduction of Clinical Pharmacy to reinforce in the graduate the concept of disease states and bring him closer to the patient in the area of drug interaction, hypersensitive reactions, side effects and drug compliance all of which will help achieve effective drug therapy.

(*ii*) *Industry:* It is true that like all the other sectors, industrial pharmacies or drug manufacturing establishments are also concentrated in Accra. A few productive ones are in Koforidua, Kumasi and Nsawam. The only improvement required in this sector is not in numbers or their locations but in their specialization and productivity. I suggest that these industries are made to specialise in what they produce to make them viable and productive. This will help make items available.

(*iii*) *Hospital and Retail:* These are the two areas of pharmacy which give either the good or the bad image to the profession because these categories are in direct contact with the public. These are also the two areas that have to be extended to the rural areas because they form the major distribution outlets. The problems associated with the two are different. Hospital is public and as such the pharmacist may not have direct control of its location or even administration. Retail is private business and profit orientated and therefore turnover rate conscious; this explains their conglomeration in city centres.

(1) *Hospital:* This includes government and non-governmental establishments; whereas the government maintain hospitals in the cities and towns, the churches have for

years run hospitals that serve the rural folk in towns and villages.

The newly appointed Director of Medical Services made an unfortunate statement about pharmacists not wishing to remain in Hospitals Pharmacy. The Society has already given a fitting reply but I would like to add that:

(*i*) The government and the Ministry of Health are aware of the efforts being made by the Pharmaceutical Society to help train pharmacists and attach almost all of them to hospitals for the first 2 years after graduation during their professional training / national service attachment.
It is unfortunate that the Directorate of the Ministry of Health cannot attract and retain them after that.

(*ii*) The numerous files in the Ministry of Health recounts the plight of and appeals made on behalf of the hospital pharmacist all of which have fallen on deaf ears. Problems of remuneration, relatively inadequate accommodation, non-practising allowances, post-graduate training, transportation and many more make one wonders why the government hospitals still attract any pharmacist at all.

The changes that need take place in Hospital Pharmacy before one can think of an extension is so revolutionary that time will not permit me delve into them but to give a few examples; I have always wondered who is responsible for the quantity and quality of drugs imported into this country by both government and the private sector either as finished products or for local manufacture. When something goes wrong, whose responsibility is it? I will lay this at the door step of those of us in hospital. Again we are told the pharmacist is responsible for an up to date information on drug usage, toxicity, side effect and interaction etc. but we are yet to see even the most current edition of the important books and journals on pharmacy practice such as B.P., NF, Pharmaceutical Sciences, etc. in any government hospital. When WHO reports on drugs that are withdrawn, who is responsible in this country for ensuring that the reports are circulated and complied with. We keep hearing of the withdrawal of drugs like phenylbutazone and its analogues, the junior aspirin, encapsulated Tylenol etc. but where is the official Ghanaian information bulletin?

I think these are the major areas of Hospital Pharmacy that requires improvement before an extension to rural areas.

(*ii*) *Retail:* If Ghanaians in the rural areas are to benefit at all from professional Pharmaceutical Service, then it may materialise through the retail outlets because it is private where majority of pharmacists are currently operating. Unfortunately two factors mitigate against its effective operation.

These are:

(*a*) *Non-Isolation*: Retail pharmacy which is part of the Health Care Services delivery systems like its parent Pharmaceutical Services cannot operate in isolation. If the pharmacist is to go rural he will require the prescription from colleagues of the medical and para-medical profession.

(*b*) *Business Aspect*: Retail pharmacy is a business and therefore its location for good competitive business is important. The laws governing citing and location of pharmacies if not in existence must be formulated and rigidly enforced by the Pharmacy Board. Those who opt to locate their pharmacies in the rural areas as I pointed out earlier must be attracted and given incentives such as special import licence allocation and significant tax exempions by law. It is only through these incentives that the practising rural pharmacist will know that both the Society (PSG) and the government care about Ghanaians in the rural areas and recognise the possible sacrifices involved in rural community pharmacy operations.

I venture to challenge the Pharmaceutical Society of Ghana on this symposium. The rural folk are without your services. Since U.S.T. cannot produce even 1,000 more pharmacists in the next 20 years, if we are to help our rural folk I suggest well-meaning retail pharmacists are allowed, in addition to a city premise, to establish a rural community pharmacy at locations that will be mapped out by the Pharmacy Board. It is only by implementing this that you and I will be fully recognised and respected by our own folk.

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o O o

TIME IS TIME

A somewhat inoffensive-looking little man was spending his lunch-time with a former school-friend he had bumped into. Talking about the past, they forgot the time. Suddenly the little man looked at his watch and muttered: "Oh dear—it's nearly two and I have an appointment with my Psychiatrist at two O' clock sharp—it'll take me five minutes to get to his consulting room . . ."

The friend said: "Take it easy, Horace — you'll only be a few minutes late — don't look so hot and bothered.

The man said earnestly: "you don't know the kind of man my psychiatrist is. If I'm not there on time he'll start without me".

2. A Hospital Pharmacist's View

by J. ADDO - ATUAH (Mrs), B. Pharm., M.P.S.GH.

CAN the hospitals in the urban areas, that is Regional Capitals boast of their full complement of pharmacists? Korle-Bu, Komfo Anokye, Efia Nkwanta, Cape Coast, Ho, Tamale, Wa, Bolga and Sunyani certainly do have pharmacists but I am sure their numbers are far from being adequate.

But if the register of Pharmacists as at November 4 1985 is anything to go by now, then it is gratifying to note that such district hospitals like those at Nsawam, Akim Oda, Sefwi-Wiawso, Obuasi, Kete-Krachi, Axim, Salaga and Bawku can boast of at least one pharmacist each.

However, the fact still remains that the total number of pharmacists engaged in hospital pharmacy practice in the country, be they in the urban or rural areas, is woefully inadequate. They account for less than 15% of the total number of pharmacists engaged in other areas of pharmacy practice.

This situation should not be allowed to continue because I have always maintained that whatever professional image that the pharmacist may claim in society, is that in which he is seen within the hospital set up.

I know there are many here who will vehemently oppose this view but I am sure that after expanding this, at least I will get some of us present here to go along with me.

Take the pharmacist in industry, general practice (retail or wholesale) or institutions of learning. In all these places, the pharmacist is either the boss or among the bosses. His expert knowledge on drugs or in other areas as the case may be, will not normally be challenged by any other person as in most cases, he is the only professional on the spot with any knowledge at all relating to matters of health.

Now to the hospital setting. A lot of factors militate against the hospital pharmacist in his search for recognition and these are outlined below:-

1. The organisational structure of the Ministry of Health is such that the pharmacist cannot be the head of the hospital.

2. He is among a lot of health professionals with varying knowledge on health.

3. The number of pharmacists in any hospital set up in relation to that of Doctors and Nurses, say, are always such that it is very easy for them to be forgotten or overlooked.

4. The confidence of the newly qualified pharmacist is not at its best when he realises how very little he knows about the normal physiological functions of the body and how these are affected in pathological conditions which thus forms a basis for the use of his drugs.

It is against this back ground that the pharmacist at the hospital has a duty in upholding the dignity and honour of the pharmacy profession and earning acceptance and recognition as an important member of the health team.

We can raise our image within the health care delivery system and create more awareness only if we increase our numbers in the hospital set up, not only in the urban hospitals but even more so in rural ones where our impact will be greater felt.

I must sound a word of caution here, and that is numbers alone will not do the trick but we should be seen by other health professionals to be actively involved in the running and the management of the hospitals as a whole, and not glued to our corner, concerned only with duties such as the acquisition of drugs, drug manufacturing, distribution and dispensing.

In reading the recently published Nuffield Report on Pharmacy Practice in the U.K., it was made very clear that the pharmacist should reach out within the community and play a more active role in public health education programmes. Thus the hospital pharmacist should now place more emphasis on the provision of drug information to other health personnel, patients and the general public at large. They should be more involved in patient care both in the O.P.D. and the Ward, thus interacting more with Doctors and Nurses.

In the Primary Health Care concept, pharmacists, especially those in the rural areas can provide the rural communities with valuable information not only on the dangers of misuse of drugs but on the role environmental sanitation and personal hygiene play in maintaining the individual's health. Still with the Primary Health Care concept in the country, one thing which struck me vividly is the fact that in the membership of the District Health Management Boards, no mention is made of the Pharmacist in the district hospital.

Get involved

Fellow Pharmacists, this to me is a very serious omission. Was the pharmacist left out because he is not available at the district level or is it due to his intertia in the health care delivery system?

One of the reasons we often give for leaving the hospital set up is that we are not afforded the due respect and recognition, but I tell you, respect and recognition are earned, not given as gifts. We have to assert ourselves and be more involved in the health care delivery system as a whole. Personal experience has shown that when the pharmacist in the hospital set up shows clearly by his actions that he is firm, disciplined, conscious of his duties and knows what he is about, no one, not even the very top man, can risk ignoring him; and come to think of it, the pharmacist is the one with the greatest responsibility in the hospital, that of ensuring the safety, potency and the proper use of often millions of cedis worth of drugs.

Other injustices normally meted against the hospital pharmacist like discrimination in the allocation of bungalows and means of transport; the non-payment of allowances, e.g. extra-duty and petrol allowances, allowances for working in rural hospitals; and incentives such as sponsorships for further and continuing education in the form of formal programmes, seminars and conferences etc. can only be rectified if we increase our number in the hospitals and thus our thrust and impact in the public health care delivery system. There is certainly strength in numbers so please do let us stay and fight to create more favourable conditions for ourselves.

It is true that some health professionals would like to make the working environment so unattractive

to the pharmacist, especially in the rural set up, where the presence of the pharmacist is almost always seen by the often only doctor on the spot as a threat to his total supremacy and Lordship over all in the hospital. In such situations, I would appeal to you to be firm, principled but diplomatic for you will never win by becoming angry or giving in to frustration and leaving because there is a ready outlet for you in general practice pharmacy.

I remember the president of the Pharmaceutical Society of Nigeria once said in a contribution that "there is the need for pharmacists to strive to walk in the corridors of power and thus exert a greater influence in the formulation of government policies especially those affecting us directly". I came across a classic example of the pharmacists non-involvement in Government policy making, when reading the British House of Lords debate on the Nuffield Report on pharmacy practice in the U.K. in June this year. This house, with its full representation of Medical and Dental practitioners, very senior nurses, educationists etc. were here discussing this report which when approved and implemented, would bring considerable changes in the content of pharmacy education and practice including distribution of pharmacies, the role of the pharmacist in the Primary Health Care Service etc. but believe me, that there was not a single pharmacist in the whole house.

In bringing my discussion to a close, I would like to summarise briefly why it is important that we extend pharmaceutical services to cover both urban and rural hospitals. Some of the benefits that go to the patient are that, the hospital pharmacist, with his knowledge on general pharmacology, drug interactions and toxicity, patient drug compliance and often a greater knowledge of the patient's drug profile and history, has often proved invaluable in assisting the medical practitioner to provide a more efficient, acceptable and satisfactory treatment for the patient. This will of course greatly reduce, iatrogenic conditions which according to a recent W.H.O. report is on the increase. A study conducted at the medical ward in Yale University Hospital showed that 240 out of the 1,252 patients had complaints connected with the hospital environment or the treatments they had received.

The efficient and judicious use of medication in this way will of course greatly reduce costs both for the patient and ultimately for the government.

To us as pharmacists, we stand to enhance our image among equivalent health practitioners and also to increase our influence in matters of state, and of course we must not lose sight of the fact that by our constant association with people of equivalent standing in medical circles and the presentation of diversified signs and symptoms of different disease conditions, the hospital pharmacist has a greater opportunity of broadening his knowledge, if he so wishes, to cover all aspects of patient care and treatment.

Dear colleagues, this is a great challenge, so let us live up to it.

Joyce Addo-Atuah (Mrs) is Senior Pharmacist at the Police Hospital Accra.

3. A Rural Pharmacist's View

by E. K. ADDOTEY, B. Pharm., M.P.S.GH.

I believe that it would be no news to any of us when we are told that 60 % of our total population is concentrated in the rural area and as such it would be proper for the Pharmaceutical Society of Ghana to encourage its members to extend their qualified services to this sector so that the objectives of the Government's policy of Health for All by the year A.D. 2000 could be achieved.

In doing this one has to consider problems the qualified Pharmacist would encounter in trying to extend his or her services to the rural areas which may be defined as district capitals and areas where there are existing health facilities as private clinics, government hospitals and health centres without pharmacists and also areas without any of the above mentioned health facilities.

These are: The problem of getting a suitable accommodation as well as premises to establish the pharmacy. In the face of this, he is forced to put up his own premises to meet the standards of the Pharmacy Board and this entails capital beyond his means.

The problem of lack of utilities such as telephone, electricity and water. We are all aware that one of the basic requirements for the establishment of a Pharmacy is that, there should be a continuous flow of water on the premises. This in fact poses a big problem to the preparation of mixtures in the rural areas. Also at places where generators are used as the source of electricity, the town stands the chance of having frequent electricity failures. This would in fact affect the electrical appliances on the premises viz: fridges and air-conditioners and biological preparations which should be stored at specified temperatures.

Patronage: this factor will vary from place to place but generally only few towns would have dense population to patronise a pharmacy in the rural area. Enough sales would just not be made to meet overhead costs of the shop, and the pharmacist would be highly disappointed.

Poor inflow of prescriptions: Too few prescriptions flow in. Sometimes none at all in the case of places were there are no clinics or hospitals around. The pharmacist would therefore be faced with the problem of being unable to maintain ethics and would be practicing medicine.

Public Education: The pharmacist encounters the problem of having to spend a lot of time to counsel his customers. Besides being branded a talkative, this practice, paradoxically drives most of the customers away. This is because most of them come to buy one or two tablets or capsules of say six different items. In trying to explain the correct dosage, the customer leaves to a nearby chemical seller who would just serve him with his needs.

Competition from the chemical sellers in town: Even though differences in prices would win him more customers, his profit margin would be small and his progress would be very slow. This in fact would not

make it possible for him to pay the school fees of his children.

Procurement of Stock: since the manufacturing houses are all centred in the urban areas the "rural pharmacist" comes to purchase drugs at specific times to conform with the shifts in production lines and most often he would not get all his requirements. The most serious part of this problem is clearly seen with the imported or finished products. By the time the rural pharmacist comes down, the goods, would have been distributed already. This is because the goods are even not sufficient for the urban areas.

Finally, if a pharmacist moves to the rural area, it will take him sometime to make acquaintances and as such, it will also take some time before the financial institutions come to his assistance.

After talking at length on the problems facing the pharmacist in extending his services to the rural area, I would like to mention some facilities that some of these towns have and would attract a pharmacist to the rural area.

Good road network: Some have good roads which would facilitate movement for the purchase of drugs from urban areas. Examples are best known to us.

Railway network: Towns with rail facility will ease transportation of imported items from the ports e.g. Obuasi, Fosu, Achiase etc.

Rural Banks: With the establishment of these in most district capitals and commercial areas, pharmacists could be considered for loans. Since his services would be most appreciated by the members of the community he could then be considered for soft loans from these banks. (In this case he may not compete with any pharmacist in the area since he might be the only one operating).

Most chiefs at the moment are ready to release buildings for health posts and are also prepared to extend such facilities to the pharmaceutical sector. And last but not the least, food which causes great drain on the pockets of pharmacists in the urban area is no problem.

On this note I would like to conclude by saying that there is the need for the pharmacist to extend his qualified services to the rural area to help achieve the World Health Organisation's Declaration of Health for All by the year 2000 A.D.

Mr. E.K. Addotey was formerly the Superintendent Pharmacist at Andameson Pharmacy Obuasi. He is currently with Angola road Pharmacy, Accra.

4. An Urban Pharmacist's View

By S.N. TENKORANG, B. Pharm, M.P.S. GH.

INTRODUCTION

Pharmacy, the knowledge system of drugs, is at the nerve centre of health care delivery. It is virtually impossible for any major element of the health care system to function without ready access to the knowledge and services which only pharmacy can provide. In modern societies, where the culture is basically a drug culture and life, regarded as a drug-deficient disease, the pharmacist faces the onerous task of showing how to make his services more readily available to the people. He is faced with the task of providing for the specialized drug needs of every community and creating a better drug consumption attitude particularly among the rural folk where the vast majority of the population live. With the introduction of the Primary Health Care concept, the role of the pharmacist in the health service would be to ensure that the factors necessary for the attainment of health for all, as related to pharmaceutical services, are allowed to operate so that the national essential drugs supply is improved.

Overview of Pharmaceutical Services– General Practice Pharmacy

In a situation where the vast majority of the population estimated between 70 and 80% live in the rural areas with high illiteracy rate, the performance of pharmacists will be judged from the impact we can exert in making pharmaceutical services readily accessible to every section of the community. That the effect of this impact is in the negative due to our overwhelming, inadequacies and shortcomings in rendering professional services to promote and better the health of the people, is a hard fact we cannot deny. Various factors are responsible for this unsatisfactory situation, and this is discussed under the next heading.

The image of pharmacy in the country suffers a great deal, and its effectiveness in playing its proper role in the country's health care delivery system is brought into serious question. To the greater section of the community, pharmacy means little more than a brisk commercial activity. Pharmacy has failed to control the various abuses to which drugs are put, the proliferation of quacks who threaten the very health status and lives of our people; and, as an important member of the health team, the pharmacist has failed to educate the public on preventable health hazards as they relate to pharmaceutical practice. Among the rural folk, it is not difficult to recognize the disillusionment of the people about the lack of qualified pharmaceutical services. They have had to resort to various inappropriate sources for their drug needs. And, why blame them if in their quest for pharmaceutical services they fall prey to unqualified practitioners? Their drug needs ought to be met, but it is rather unfortunate that a situation persists whereby the health of the rural population is not accorded the due professional attention it deserves. The majority of the farming communities are located in the rural areas, and since agriculture is considered vital to our economic growth, rural health consideration should be the

pre-occupation of the Health Care Delivery Team. It is therefore very important this thought-provoking theme of "extending qualified pharmaceutical services to the rural areas" has been chosen for discussion during this year's Anunal General Meeting.

Broad Issues of Pharmaceutical Services – Community Pharmacy PROBLEMS

Various constraints have contributed to the insufficiencies in pharmaceutical services among many communities. These include:

(*a*) Lack of an essential drug list for every locality;

(*b*) Deficiencies in the control and streamlining of importation of drugs;

(*c*) Lack of requisite information on the registration of drugs on the market;

(*d*) Problems with purchase, storage and distribution of drugs;

(*e*) Insufficient budgetary allocation to drugs;

(*f*) The problem of expanding the pharmaceutical industry where it already exists, or that of starting it where it does not exist;

(*g*) The problem of quality assurance and control of drugs;

(*h*) Pricing, labelling and promotion of drugs and the training and development of personnel for pharmaceutical services;

(*i*) The training of health workers in the handling, distribution and utilization of essential drugs to the pharmaceutical services;

(*j*) Education of the public so as to establish a favourable drug consumption attitude and check abuses.

These factors are necessary for the attainment of health for all in so far as pharmaceutical services are concerned. Their importance could be appreciated better in the manner in which they have affected the locations of pharmacy shops in the country. These are mostly sited in areas where it is comparatively easier to manage some of these mitigating factors.

An additional factor is the relegation of ethical considerations in favour of pecuniary interests, especially in the general practice. This fact manifests itself in the overwhelming lead retail pharmacy enjoys among pharmaceutical practices and the general distribution of pharmacies in the country. Pharmacy shops proliferate in the urban centres where the level of commercial activities guarantees a favourable pharmaceutical business.

As at 4th November, 1985, there were about 500 registered pharmacists in the country out of which only 82 work in the Ministry of Health. The remaining number constituting 84 % engage in general practice, with nearly 80 % settling in the urban centres.

The table below shows the distribution of registered pharmacies in the regions.

A discussion of this table clarifies better the situation which exists now, namely, lack of adequate and qualified pharmaceutical services in the rural areas, at least as far as the private sector is concerned. But it is a well known fact that the other areas of pharmaceutical activities are no better in this respect.

In addition to the mitigating factors enumerated earlier, there are numerous other constraints which hamper progress as far as extending pharmaceutical services to the rural

TABLE SHOWING THE DISTRIBUTION OF REGISTERED PHARMACIES IN THE REGIONS AS AT 21.3.86

REGIONS	WHOLE/RETAIL	RETAIL	TOTAL	REGIONAL CAPITALS ALONE
GT. ACCRA	106	65	171	162
EASTERN	9	9	18	9
ASHANTI	38	44	82	75
CENTRAL	2	3	5	4
WESTERN	14	3	17	16
B. AHAFO	2	1	3	2
VOLTA	2	3	5	1
NORTHERN	2	1	3	3
U. WEST	—	1	1	1
U. EAST	—	—	—	—
Totals	175	130	305	273

communities and urban slums are concerned:

1. There is the problem of acquiring appropriate infrastructural base;
2. Lack of essential amenities such as regular water and electricity supplies;
3. Security of investment against burglary and natural hazards;
4. Transport and communication factors as they affect constant and efficient drug supply;
5. Inadequate banking facilities;
6. Economic factors as they affect money supply;
7. Lack of storage facilities as they affect bulk purchases and quality assurance;
8. Pricing of drugs in the rural areas constitutes a problem in view of the difficulties involved in procurement from urban centres to be reflected in the level of expenditure;
9. Social factors come into play since there are inadequate educational centres, entertainment and other social activities. The pharmacist may thus decide to leave his family in the city, and, here, the possibility of inadequate parental care cannot be ruled out.

It is apparent that there isn't any efficient machinery engaged in vigoroeus pharmaceutical services research activity to ensure the smooth transfer of adequate services to the rural communities. The successful development of such a programme is likely to meet certain impediments as well. These include:

(*i*) Lack of awareness of the nature and value of health services research for planning and management decisions by government agencies;

(*ii*) Absence of a functional focus for promoting and organising health services research;

(*iii*) Shortage of trained personnel and lack of local training capability;

(*iv*) Lack of financial support or a funding mechanism for health services research;

(*v*) And reluctance of biomedical and social scientists to engage in health services research.

The resultant effect of these health services inadequacies is that people who live in the rural areas generally have poorer access to health care than their city cousins do. The health needs of women and children, particularly those living in the rural areas, are not adequately met. Infections, malnutrition, and the complications of pregnancy and childhood continue to take a heavy toll of life for many reasons, among which are inadequate health care and family planning, poverty, ignorance and social changes.

Future

The national resources are insufficient for the provision of a complete health service in the rural areas particularly as they relate to pharmaceutical service staffed by qualified personnel. And, to help arrest the situation, we must set ourselves very clear objectives. These should include:

(*a*) To promote a sense of national awareness on the precarious health situation of the country and the extent to which pharmaceutical services, especially in the rural areas, can be improved.

(*b*) To identify the problem areas and the factors which mitigate against efficient health services to every section of the community.

(*c*) To objectively assess the performance of pharmacists against the background of efficiency and ethical conduct, and examine critically the need for a change of attitude towards unacceptable standard of practices.

(*d*) To promote a scientific study of the health situation especially as it relates to the choice of essential drugs for each community.

(*e*) To promote the use of good quality traditional remedies as an additional source of drugs and to reduce our dependence on imported drugs.

(*f*) To adopt certain measures of cost containment in order that patients everywhere would be encouraged to seek the expertise of pharmacists on pharmaceutical matters.

The expectations of the immediate future in extending qualified pharmaceutical services to all sections of the community to help attain health for all can only be met if the necessary steps are adopted to advance the goals of these objectives.

Advantages

The following are some of the advantages which can be obtained if our future aspirations to extend qualified pharmaceutical services to the rural areas prove successful:

(*a*) Cheaper sources of drugs to the rural communities;

(*b*) The quality of drugs can be expertly assured concerning their efficacy, safety, their chemical identity, purity, potency and stability.

(*c*) By offering effective education and counselling the incidence of quackery can be eliminated, drug abuse and misuses can be checked and their related problems controlled, family planning programmes can be implemented more effectively and birth control and population growth kept in constant check.

(*d*) Many preventable diseases can be controlled, morbidity and mortality rates cut down considerably with prolonged life expectancy.

(*e*) Emergency treatment by means of first aid can be offered by the pharmacist, and he can also manage simple ailments at the local level.

(*f*) Ready accessibility of pharmaceutical services to children, the elderly and the disabled.

(*g*) An effective teamwork can be established with herbalists, and the community pharmacies can serve as outlets where herbal pre-

paration (with proven efficacy) from renowned and effective herbalists can be introduced.

(h) The Pharmacist will then be seen to be contributing effectively to the success of the Primary Health Care concept, and placing his abundant skills at the disposal of the District Health Management Committee.

(i) As Pharmacists, we must also consider some of the opportunities open to us in the rural areas. These include cheaper labour; lower salary and allowance expectations of staff (no T & T, no accommodation problems, etc); possibility of earning extra income by engaging in various farming activities; cheaper food supplies; and a general low cost of living.

(j) The overall effects are an improved health status of rural dwellers, the establishment of a sound basis for economic activity, and an improved pharmacy image within the community.

Summary of Recommendation

The Pharmacist is an important link in the chain of members of the health team; he should be involved in setting up Primary Health Care structures and making them work, particularly as regards the supply of essential drugs. The Pharmacist must therefore become aware of the extent of his role and responsibilities in the conception and application of any policy. Accordingly, the following recommendations are advanced:

1. that Pharmacists should be closely involved in the formulation of all policies and decisions in the pharmaceutical field;
2. that favourable conditions be created for the Pharmacist to practice his profession by setting up appropriate structures at the central, intermediate and peripheral levels; Pharmacists who engage in rural practice should be given every encouragement including tax concessions and financial support from a central funding system; and community awareness should be awakened by education in realizing the need to co-operate with and offer the necessary support to rural pharmaceutical practice.
3. that the use of the Pharmacist's skills be promoted and his authority confirmed by appropriate legislation in the areas of procurement, distribution, storage, manufacture, control, pharmaceutical research and bio-medical tests of drugs and vaccines;
4. that the training of Pharmacists and pharmaceutical auxiliaries be encouraged by strengthening the existing institutions, providing more schools and awarding fellowships in Pharmacy;
5. that Pharmacists be involved in the training of community workers responsible for the management of pharmaceutical services at the local level and all other workers who assist the Pharmacist in carrying out his duties;
6. that Pharmacy and Dispensing Institutions be urged to re-examine and redesign the curricula for Pharmacists and pharmaceutical auxiliaries on the basis of increasing their awareness of primary health care programme;
7. that Pharmacists should co-operate with each other as a means of solving common problems relating to efficient pharmaceutical services to every section of the community;
8. that a Pharmaceutical Services Research body be formed; such a body should liaise with public health policy-makers, planners and administrators who are engaged in initiating strategies for attaining the goal of health for all by the year 2000; the findings should be communicated to potential users in simple language to render them acceptable;
9. that the government should fully recognize the importance of drugs and allocate appropriate funds;
10. that the government should be politically committed to support all programmes geared towards achieving the theme of this symposium — "Extending qualified pharmaceutical services to the rural areas".

Conclusion

Pharmaceutical service in the country, especially in the rural areas, is inadequate. The vast majority of the population live in the rural areas where they engage in various agricultural activities to support the national economy. Since we recognize and accept the fact that health improvement and economic growth are dependent on each other, it is important that the necessary steps are adopted to ensure that the consideration is given to the health needs of every section of the community. The solution to the problem remains the responsibility of the health care delivery team which professes to uphold the health and safety of patients to be of first consideration. And, as Pharmacists, we must take the initiative by extending qualified pharmaceutical services to the rural areas; the government should then be urged to provide the requisite supportive systems to facilitate the realization of this noble objective. The provision of essential drugs and vaccines to every section of the community is one of the major components of the Primary Health Care, and absolutely essential if the target of Health For All By The Year 2000 is to be achieved. The full involvement and participation of Pharmacists in all matters relating to essential drugs and vaccines is the only guarantee of successful implementation of this programme.

Mr. S.N. Tenkorang is the Supervising Pharmacist at John Lawrence Chemists Ltd., Accra.

THE BETTER SURGEON

The surgeon was operating on a glamorous show-girl when the student surgeon pushed him aside and said: 'Do you mind if I cut in?'

Communique of the 1986 Annual General Meeting of the Pharmaceutical Society of Ghana held at Koforidua

We, members of the Ghana Pharmaceutical Society assembled here at the HOTEL EREDEC. Koforidua in the Eastern Region from September, 4 to 7, 1986 at our Annual General Meeting, being aware of the fact that a healthy population is an asset to every nation, and in accordance with the Government's policy of providing health for all by the year 2000 through the Primary Health Care Programme, and in furtherance of the World Health Organization's Alma Alta declaration have observed the gross injustices against the rural dwellers in the provision of pharmaceutical services.

Having extensively deliberated on the topic "Extending Qualified Pharmaceutical Services to the Rural Areas" we have identified certain prominent factors that militate against the extension of qualified pharmaceutical service to the rural areas as follows:-

1. *Shortage of Personnel:*

The few pharmacists available are poorly motivated through inadequate provision of requisite equipment, poor remuneration and lack of incentives. This is particularly so in the service conditions of the pharmacists in the public sector.

2. *Capital for investment and infrastructural facilities:*

These are either lacking or are available at costs outside the reach of the prospective rural pharmacists.

3. *Legislation governing pharmacy practice:*

These are either inadequate, outmoded or poorly enforced. The conference has therefore resolved that the following corrective measures be pursued:-

(*i*) The Government should open up the rural areas by making these areas easily accessible and provide essential services like good drinking water and electricity.

(*ii*) The Government should provide Health Centres in the rural areas and furnish these with the requisite equipment to ensure job satisfaction for the pharmacists.

(*iii*) The Government should enact legislation that favours the granting of soft loans by financial institutions (Rural banks) to the pharmacists and also give tax concession and institute special import licence programme for the prospective pharmacists who operate in the rural areas.

(*iv*) The Government should promulgate the Pharmacy Council Law and also the Drugs, Cosmetics and Poisons Law with the view to giving full recognition to the Pharmacy Profession.

(*v*) Pharmacists and Pharmaceutical companies should recognise their responsibilities to serve the rural communities in view of the immense contributions the rural folks make towards the national economy.

(*vi*) Drug manufacturing and distributing companies should allocate a portion of their products at reduced prices to all pharmacists who operate in the rural areas as an incentive.

(*vii*) The Ghana Co-operative Pharmaceutical Company Limited should expand its activities to reach the prospective pharmacists in the rural areas in order to lessen the financial burden of the rural folks.

(*viii*) The Pharmacy Board in conjunction with the National Service Secretariat should continue with their current programme of extending qualified pharmaceutical services to the rural areas.

(*ix*) The Government should seek to actively promote the development of pharmaceutical services in general under a separate budget funding to provide improved remuneration, transport and accommodation facilities for the pharmacists. Also extra professional allowances should be paid to the pharmacists in the rural areas as being enjoyed by other health professionals like Doctors in the Government Service.

(*x*) The Pharmaceutical Society should conscientiously persuade and influence the Government to display the political will to embark on the programme of decentralization, such that, the pharmaceutical services in each region could enjoy a certain amount of autonomy, and could decide their medical requirements according to the particular needs of the region, and order their requirements either direct from overseas or collect or purchase them from the Central Medical Stores.

(*xi*) The Pharmaceutical Society, in conjunction with the Faculty of Pharmacy, should make adequate provision through continuous education programmes to equip the pharmacists with the requisite knowledge to enable them interact confidently

(*Continued on page* 40)

GREATER-ACCRA

Duties of the Hospital Pharmacist

AT the symposium organised by the Greater-Accra Branch on May 15, 1986, Major J. Appiah (37 Military Hospital), speaking on the topic "The role of the Pharmacist in the Health Care delivery system", recounted the duties of hospital pharmacists. He cited some problems they face and gave recommendations which would go a long way to improve the quality of service they rendered.

Major Appiah said hospital pharmacists were required to do the following: Procure and properly store drugs, galenicals, powders, dressings and equipment; dispense in-patient and out-patient prescriptions; formulate and engage in small-scale manufacturing of stock mixtures and skin ointments which should pass the prescribed quality assurance tests; and to inform other members of the health care delivery team as well as patients and the general public on the proper use of drugs.

It was also their duty, he added, to control and monitor drug use and to maintain proper records of these; to practice Ward Pharmacy (also known as Clinical Pharmacy but which is yet to be introduced in Ghana); to plan and budget; and to train and supervise subordinate staff and auxillaries.

He cited inadequate supply of resources such as galenicals and equipment as some problems which militated against the efforts of pharmacists, who invariably were not found in sufficient numbers, to effectively serve the community.

Major Appiah also mentioned out-dated legislation which still regulated the practice of pharmacy and failure by those concerned to give professional recognition to the hospital pharmacists as other problems.

In his opinion, should more pharmacists be turned out by the Faculty of Pharmacy; regional hospitals be furnished with the necessary equipment and other imputs; the grading, promotion and remuneration of pharmacists be improved "as a matter of urgency"; and finally, the proposed Pharmacy Council and Drugs and Cosmetic laws be brought into force, hospital pharmacists would be placed in the position to play their "meaningful role" in society.

The P.H.C., The Pharmacist

Although government had since 1960 spent a lot of money furnishing our hospitals and other health care centres with resources with the view to providing health care to all, only 30% of the population actually benefited from these institutions, Mr T. C. Corquaye (Registrar of the Pharmacy Board) told the Greater-Accra Branch of the Society at a symposium on May 15, 1986.

It was therefore the desire of government to alter this situation and extend health care to at least 80% of all Ghanaians by the year 1990 that the Primary Health Care Programme had been adopted, he said.

According to Mr Corquaye, the Primary Health Care strategy, which is primarily preventive rather than curative in approach, and which is an "activating supplement" to the aforesaid provision is a three tier system in terms of personnel arrangement.

At the base are community health workers selected and rewarded by the community itself, but trained by the Ministry of Health in primary preventive procedures as well as simple first level curative measures with emphasis not only on pregnancy management but also on child health and its related community projects.

The second level personnel is made up of community nurses/midwives with additional training in therapeutic procedures and community environmental development officers.

The third or district level is a District Health Management Team (DHMT) which consisted of the District Medical Officer, the District Public Health Nurse, the District Health Administrator and the District Health Inspector. This team is expected to liase with the District Chief Executive "in order to ensure an integrated approach to total community development".

Mr Corquaye said it was "widely acclaimed" that for the scheme to succeed, drugs, vaccines and other pharmaceuticals should be made adequately and readily available. Pharmacists therefore have vital roles to play in the Primary Health Care programme.

In view of this, he charged the Pharmacy Division of the Ministry of Health to play its role effectively by making medicaments "continuously and readily available".

The Registrar noted that the Pharmacist in charge of the district hospital carried the greatest responsibility since he had to effectively, store and "arm himself sufficiently well to be able to counsel the Primary Health Care team at all levels on the correct handling and use of drugs and to establish good rapport with them".

President on Professional Ethics

The President, Mr K. Ohene-Manu, has in a talk to the Greater-Accra Branch on July 17, on the topic "The Ethics of Pharmacy Practice in Ghana" expressed his dissatisfaction at the behaviour of some pharmacists which are at variance with the Code of Conduct of the Society.

According to the President, some pharmacists issued cheques for payment of pharmaceuticals bought from organizations and colleagues only for these to bounce. He cited instances involving GIHOC Pharmaceuticals and the Ghana National Procurement Agency and defaulters which have led to these organizations refusing to accept cheques from pharmacists.

Some also, he said, either aided unqualified persons to bring in drugs under the special Unnumbered Licence (SUL) by signing papers involved in the preparation of these

licences or appended their signature to blank Signed Orders for quacks to utilise.

He advised against the practice not only of putting up advertisements which were inaccurate or drew an "invidious" distinction between services rendered by the advertiser and that of other competitors, but also that of retaining sign posts put up to direct customers to newly opened pharmacies well after the allowed period of 6 months.

The President said article 23 of the Code enjoins each member to refuse a job as sole pharmacist where he "is not able or required by his employer to perform the full duties of pharmacist in charge or which requires him to consent to unethical conduct" and demanded that pharmacists adhere strictly to this article.

He reminded his audience that the Code imposed "moral obligations on us and any breach or failure to observe any of the articles constitutes ethical misconduct which should attract the appropriate sanctions from the Disciplinary Committee of the Pharmacy Board and the Pharmaceutical Society".

"I have raised a number of issues which should help all of us to ponder anew over our actions and activities as pharmacists and seek to make amends where we have fallen short of the requirements of the code of Ethics" he concluded.

Noting that some of the articles in the Code were out-dated, Mr Ted Benasko (Baskofarma Limited) inquired from the President if provision existed for making changes in the Code.

The President responded that since the ethics of any profession was "positively dynamic, that is, subject to changes for the better in the light of new experiences and the desire for progress", avenues were available for amendments to be made.

Mr T. C. Corquaye (Registrar, Pharmacy Board) contributing, suggested that henceforth newly registered Pharmacists be given copies of the Code at their induction ceremony.

Mr S. A. Botchway (Deputy Director of Pharmaceutical Services) who was Chairman, urged members to tip the scales more in favour of ethical practices rather than commercial gains although the present economic climate tended to distract attention from the former course.

ASHANTI

Seminar for Chemical Sellers

THE Ashanti Regional Branch has organised a one month seminar under the theme "Towards effective Pharmaceutical Services under the Primary Health Care Programme" for licenced chemicals sellers and non-pharmacist pharmacy proprietors in furtherance of the governments plan to provide health care for all.

The Seminar which was, among other things, aimed at making, "the activities of the licenced chemical sellers more meaningful and beneficial to the community" took place at the Kumasi Technical Institute (K.T.I,) from July 2-31, 1986.

In his opening address, Mr M. A. Addo, Chairman of the Branch emphasized on the aims and objectives of the seminar and the challenges emanating from them.

In a speech read on his behalf, the PNDC Regional Secretary attacked drug dealers on the "ineffective and unprofessional" ways they went about their practice and urged them to be law abiding.

The Deputy Director of Pharmaceutical Services (Ashanti Region), Mr C. R. Osei-Bonsu reminded the participants on the laws governing the issue of chemical sellers licences and advised them to adhere to their areas of operation. He also changed the law enforcing agents not to regard chemical sellers as criminals.

In his remarks, the Chairman for the occasion, Mr T. C. Corquaye, Registrar of the Pharmacy Board asked the participants to take the seminar seriously and commended the Ashanti Regional Branch for their initiative in organising the seminar. He took the opportunity to clear the air concerning junior aspirin, phyenylbutazone and other products whose use have been banned.

The chairman also reminded his audience of the need to renew their licences before the end of March each year, if not before January 31 as required by law.

Some of the subjects taught at the seminar included health science, dispensing, business management and first aid. Lecturers on the AIDS disease, tax obligations and traditional medicines were also delivered.

Meanwhile, it is reported from Kumasi that changes like display of appropriate signs on premises, neatness of environment by painting and washing of floors, neat appearance of personnel and the introduction of accounting books have already taken place in shops manned by those who participated in the seminar.

FACULTY

A Real Forward March

Professor D. Dwuma-Badu, Dean of the Faculty of Pharmacy, has in a speech at the Faculty's Flag Raising Ceremony, which formed part of the activties marking the 25th annisary of the University of Science and Technology, outlined some of the achievements and problems of the faculty.

Commencing with a brief history of the faculty, the Dean said the faculty, whose present student population stood at 160, had since its inception turned out 441 graduates and 120 diploma and certificate holders.

He said although the faculty started in 1953 with only three British lecturers, today its activities is being run by several competent Ghanaian dons.

Many of these, he added, had acted as external examiners in other pharmacy schools and some like Prof. A. N. Tackie and himself had helped to set up pharmacy schools in Liberia and Nigeria respectively.

The Dean noted that in the areas of research, the Faculty had carried out systematic scientific investigations into several West African medicinal plants yielding interesting and promising results, and that some products are in the process of being formulated to be used in our hospitals.

He said the Faculty also offered consulting services to pharmaceutical manufacturing industries especially those without quality control facilities.

The Dean announced that a member of staff, Mr Ayivor, had designed and constructed a baby incubator and hoped an agreement would be reached between the University and the Ministry of Health for more

to be manufactured for use by the two Teaching Hospitals.

Touching on the problems facing the Faculty (with the hope that government, other institutions and individuals would come to its aid), Prof. Dwuma-Badu said air conditioners required to keep some sophisticated instruments in good working condition, fumecupboard, dissolution rate equipment and microscopes were lacking.

He pointed out the need, firstly, of a 30-seater bus for industrial training trips; secondly, to paint the "giant" Faculty building; and lastly, of rehabilitating the old pharmacy building to house some departments as well as the Faculty Production Unit.

The Dean however, reported that the Vice-Chancellor had applied for French financial aid and that should this go through, it would be possible to equip the Faculty with most of the "modern instruments needed for a good Pharmacy School".

Dwuma - Badu Elevated

The Dean of the Faculty of Pharmacy and Head of the Pharmaceutical Chemistry Department at the University of Science and Technology (UST) Kumasi, has with effect from October 1985 been made a full professor.

Professor D. Dwuma-Badu thus became the first alumnus of the University to achieve this, having been associate professor since 1978.

Two others, R. Ansa-Asamoah and Kwame Sarpong, who are respectively the Vice-Dean and Head of the Pharmacology Department, and Deputy Vice-Dean and Head of the Pharmacognosy Department have also attained associate professor status with effect from the same date.

This brings to four the number of professors (all alumini) of the faculty. The other is the Pro-Vice Chancellor of the University, Professor K. Boakye-Yiadom. It is worthy to note that he is the first alumnus to be named Pro-Vice-Chancellor.

A Kind Gesture

The Ministry of Health has donated a BEDFORD 350 D pick-up to the Faculty of pharmacy. The white, 1.5 tonner pick-up is expected to be used mainly in the collection of medicinal plants for research purposes.

WAPF

Researchers Vital for success of PHC plan

Mrs Aanaa Enin, PNDC member, has said that researchers have a vital role to play in the implementation of the Primary Health Care (PHC) programme which is aimed at carrying medical facilities to the doorstep of every citizen.

She was speaking at the formal opening of the 5th Scientific Seminar of the West African Pharmaceutical Federation (WAPF) held at Kumasi on April 9.

Mrs Enin said keeping the people in good health through the PHC plan would depend, to a large extent, on the availability of good quality and reliable drugs and since "in His own wisdom, God has adequately provided man's requirements in his own ecology", it was possible to source these drugs locally.

She said it was gratifying to note that most of the material they were working on had already been identified and tried by the indigenous practitioners of herbal medicine in such common diseases as epilepsy, diabetes, asthma and hypertension with very high degree of success like some imported drugs, and that what was needed now was the improvement in their formulation so that "instead of taking a calabashful of a concoction, a teaspoonful will emerge as the acceptable dose".

With this done, she added, the high cost hitherto involved in providing drugs for only a small section of the population would be cut down thus making more fund available for use to distribute effectively the locally prepared medicine to all the people.

The PNDC member suggested that a mechanism be evolved to unearth all the potential herbal medical practitioners so that vital information could be extracted from them before they phase out into eternity "otherwise posterity will be the sufferer for it".

She advocated a nuptial wedlock between orthodox and traditional medical practices saying such an arrangement would benefit both practitioners and patients.

Research findings must have practical meaning

Developing countries cannot afford to support research that produces no practical results to improve their quality of living or contribute towards their economic growth since their resources are too meagre.

This remark was made by Professor F. O. Kwami, Vice-Chancellor of the University of Science and Technology (UST) in his welcome address to the West African Pharmaceutical Federation (WAPF) at Kumasi on April 9.

He said "how to make research results benefit the people whose toil support the institutions and their research activities" should be the concern of researchers in the sub-region at all times.

The Vice-Chancellor therefore noted with relief that research workers in recent times had directed their efforts to the development of local raw materials such as starch, gums talc, fixed and essential oils in drug manufacture and also to standardisation of medicinal plants with proven efficacy in the attempt to find practical application for their research results and said this was encouraging.

Raw Materials

He urged the WAPF to work towards the establishment and promotion of local pharmaceutical industries as it was these which would eventually make use of the locally developed raw materials, otherwise the fruits of their endeavours "will not benefit our people and our countries will continue to depend on imported materials at prices that our economies can ill afford".

Prof. Kwami said the establishment by the government of the Center for Research into Plant Medicine at Akwapim Mampong was a clear manifestation of the awareness of governments in the sub-region of the need to concentrate on the development of traditional medicines which can replace some of the imported orthodox drugs or

(Contd. on page 20)

Developing Substitutes for Imported drugs from Local Sources

The constraint on the abilities and capacities of countries within the West African Pharmaceutical Federation (WAPF) to earn enough foreign exchange in this era of competitively hostile economic climate of protectionism makes it imperative that these countries become self-reliant and self-sufficient in their bid to develop, and any effort, therefore, of finding appropriate mechanism for refining their local sources of drugs is in the right direction.

This remark was made by Mrs Aanaa Ennin, PNDC member, at the formal opening of the 5th Scientific Seminar of the WAPF held at the University of Science and Technology (UST), Kumasi from April 9 to 11, 1986.

The PNDC member said she was aware of "the efforts the Federation is making towards the production of drugs from local plant sources" for use by the peoples of the sub-regions; for instance, the isolation of the active principle cryptolepine, which cures malaria and gonorrhoea from the *Crytolepis Sanguinolenta* plant.

She hoped that the recommendation put forward by the WAPF with regards to formulating acceptable dosage forms using this active ingredient would be accepted by the Assembly of Health Ministers of the West African Health Community an action whose importance would lie in the precedence it would set.

Mrs Ennin noted that although research programmes were very necessary in any human development efforts and must be supported at all cost, they were rather expensive and government and its agencies alone cannot bear the cost involved.

She therefore appealed to the "good people" of Ghana to provide financial support for such programmes, adding that the Pharmaceutical Industry stood to gain tremendously from well planned and co-ordinated research results.

Mrs Ennin urged researchers in the sub-region" to also delve into preventive medicine so that illness and the need for treatment and drugs could be minimised."

Research findings

(Contd. from page 19)

at least be used side by side with them.

He therefore charged the Federation to "focus attention on the potential of our resources in this era of Plant Medicine" and at the end of their deliberations, "show how this potential can be tapped in a practical way for the benefit of our people".

The Vice-Chancellor was confident that "when this feat has been convincingly accomplished, government will be prompted to make every means available to support Pharmaceutical industries capable of using local substitutes in the manufacture of drugs". This, he concluded, would make drugs less expensive and "our people will be most grateful to you".

oOo

TOO SMART

Looking as if he had lost all faith in mankind, a young timid man was sitting in a pub, slowly drinking a mug of beer. His friend found him there and asked him what was bothering him. "It's that fellow Mensah", he explained. "He's far too smart for me. Yesterday he sold me a plot of land to build a bungalow on, and when I went to see it, it was about five feet under water". "You should have gone for him —demanded your money back" his friend suggested "I did", admitted the other man. "And instead of getting my money back, I was talked into buying a diving suit".

AN HONEST BRIDE

They had finally got around to fixing the day for a wedding after a courtship of several years. She thought it would be only fair to confess to him. "Mike," she said, "to tell you the truth, I'm not much good at cooking" "Don't worry", Mike said. "On my salary we won't be eating often anyway".

Some Studies of the Constituents of West African Medicinal Plants, Problems, Progress and Potentials

Presented by

D. Dwuma-Badu,

Professor and Head of Department of Pharmaceutical Chemistry, Faculty of Pharmacy, University of Science and Technology Kumasi, at the Scientific Session of the Golden Jubilee Celebration of the Pharmaceutical Society of Ghana in November, 1985.

Traditional Medicine

Traditional healers in West Africa have claimed success in the treatment of several diseases including breast cancer, skin disorders, sickle cell, anaemia, venereal diseases, diabetes and some forms of mental diseases. As a result of these claims, developing herbal medicine has become a topic for discussion in various African countries including West African countries such as Ghana, Nigeria, Liberia and Sierra-Leone. There are good economic and social reasons in favour of the development of herbal medicine. It can be cheap, locally available, and is culturally acceptable to majority of our people. Traditional medicine is therefore popular in the African scene and it cannot be joked or toyed with.

Role of Scientists in promoting Traditional Medicine

It is the duty of scientists including pharmacists, doctors, pharmacologists and biochemists to scientifically investigate some of these herbal preparations that may be found efficacious. As pharmacists, we are to advise on suitable formulations and suitable dosage form, preservations, toxicity and possibly the active ingredients present in herbal preparations. The task for us all as scientists is enormous. If we are able to provide these useful data, we may then be able to convince our doctors in hospitals to accept these preparations. It is my believe that proper integration of traditional medicine into our health care delivery system can be achieved if we have sufficient scientific data to support the claims of our herbalists. It is with great satisfaction that pharmacy schools in West Africa are making such great efforts. I shall attempt in this lecture to reveal some of the efforts that we have made over the years in our Faculty on medicinal plants research programme.

Faculty of Pharmacy, UST

Some of the medicinal plants used by traditional healers in West Africa in the treatment of various aforementioned diseases have been subjected to systematic scientific investigations by the Faculty of Pharmacy, University of Science and Technology, Kumasi and sometimes in collaboration with the Department of Pharmacognosy, University of Pittsburgh and College of Medicine, University of Lagos. Through this collaborative work, several compounds of varying pharmacological effects and some with therapeutic potential have been found (See Table 1). Some of the plants which we have worked on in the Faculty are shown in Table 1. A few of these plants and their constituents are now discussed in details. The constituents of the plants *Cryptolepis sanguinolenta*, *Rhigiocarya recemifera* and *Griftonia simplicifolia* have great potential as therapeutic agents.

1. The Genus Tiliacora (Menispermaceae)

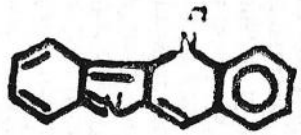
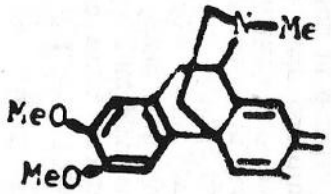
Two plants namely *Tiliacora funifera* and *Tiliacora dinklagei* belonging to this class are used in traditional medicine for coughs, strangulated hernias and menstrual irregularities. Tackie and others (1973), Dwuma-Badu and others (1977) and Ayim, Dwuma-Badu, Fiagbe, Ateya, Slatkin, Knapp and Schiff (1977) have isolated and characterised several alkaloids, notably among these are funiferine and isotetrandrine, a diastereo-isomer of anti-tumour agent, tetrandrine, (Table 1).

Funiferine, is active against acid fast micro-organisms such as *Mycobacterium smegmatis*, it has also

TABLE 1

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS

TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
CRYPTOLEPINE	*C. sanguinolenta*		Malaria, wound and urinary tract infections	Hypotensive, antipyretic, antimicrobial, negative anti-malarial activity, anti-inflamatory alpha-adrenoceptor-blocking properties.
QUINDOLINE	*C. sanguinolenta*		"	—
O-METHYLFLAVINANTINE	*R. racemifela*		Common cold symptoms, aphrodisiac	Analgesic, lack of physical dependence liability and stimulates respiration.

(Table 1—(continued)

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS

TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

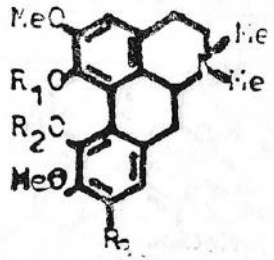
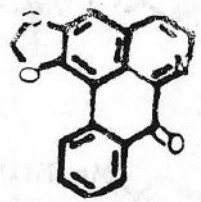
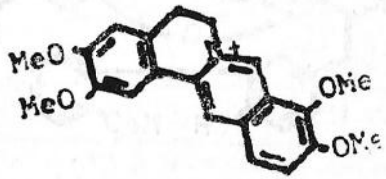
NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
MAGNOFLORIN	*R. racemifera*		Common cold symptoms, aphrodisiac	Hypotensive and curare-like action
		$R_1 = R_3 = H\ R_2 = OH$	"	—
MENISPERINE	"	$R_1 = Me\ R_2 = OH\ R_3 = H$	"	—
N-METHYLGLAUCINE	"	$R_1 = Me\ R_2 = H\ R_3 = OMe$	See below	Blocks transmission of nerve impulses.
N-METHYLCORYDINE	*S. dinklagei*	$R_1 = H\ R_2 = OMe\ R_3 = H$		
LIRIDDENINE	*R. racemifera*		—	Cytotoxic activity
PALMATINE	*R. racemifera*		"	Positive inotropic adrenocorticotropic analgesic and anti-bacterial.

TABLE 1 (CONTINUED)

CONSTITUENTS OF SOME WEST AFRICAN MEDICAL PLANTS

TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

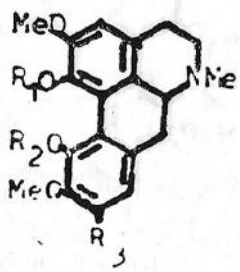
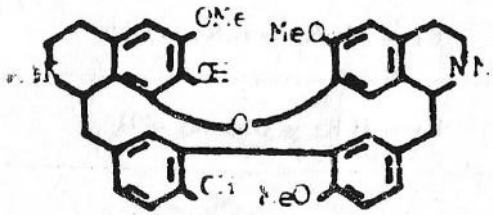
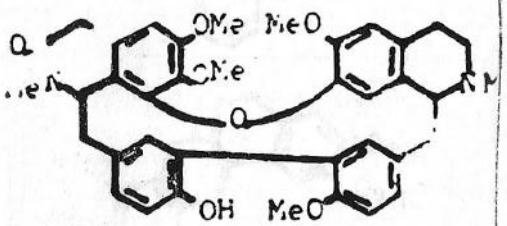
NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
CORYDINE	*S. dinklingei*	 R_1= Me R_2=OH R_3=H	Menorrhagia, as evermifuge, analgesic, aphrodisaic, infertility and impotency.	Blocks transmission of nerve impulse.
FUNIFERINE	*T. funifera*		Gastric fevers, strangulated hernia and menstrual irregularities.	Anti-microbial.
FUNIFERINE N-OXIDE	,,		,,	

TABLE 1 (CONTINUED)

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS

TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

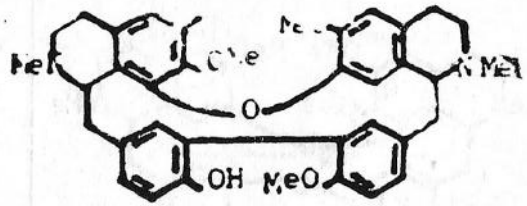
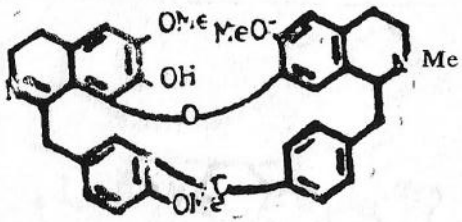
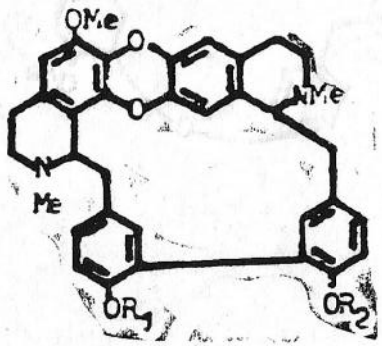
NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
N, N-DIMETHYL FUNIFERINE (IODIDE)	*Synihetic*		—	Muscle relaxant
TILIAGEINE	*T. funifera* *T. dinklagei*		as above	—
TILIACORINE	*T. fuuifera* *T. dinklagei*		as above	—

Table 1 (CONTINUED)

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS

TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

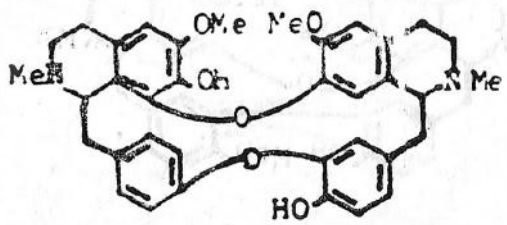
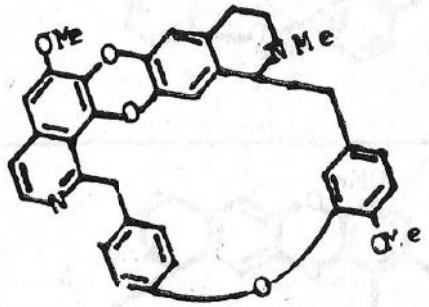
NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
AROMOLINE	*T. patens*		malaria, diarrhoea, pyorrhea swellings, anaemia and joint pains	
TRIGILLETIMINE	*T. geletii*		as for T. patens	

Table 1 (CONTINUED)

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS

TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

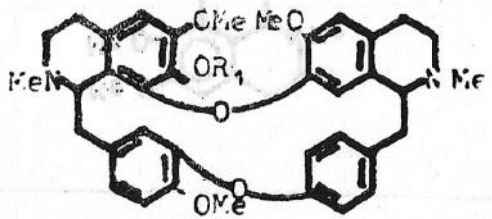
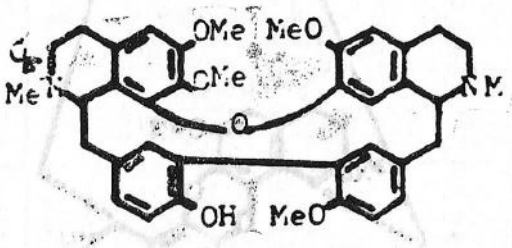
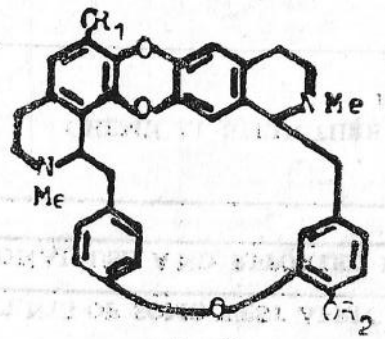
NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
TETRANDRONE	*T. subcordata*	 R_1=Me	Malaria, diarrhoea, pyorrhea swellings, anaemia and joint pains	Anti-tumour agent
Isotetrandrine	*T. gilleti*	R_1 ; Me (stereoisomer of above)	,,	Inactive as Anti-tumour agent
TILIAFUNIMINE	*T. funifera* *T. dinklagei*		As above	—
TRICORDATINE	*T. subcordata*	 R_1=R_2=H	As above	—

Table 1—(CONTINUED)

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS

TRADITIONAL USE AND RFPORTED BIOLOGICAL ACTIVITY

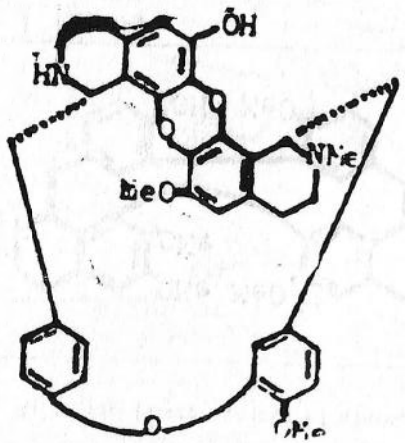
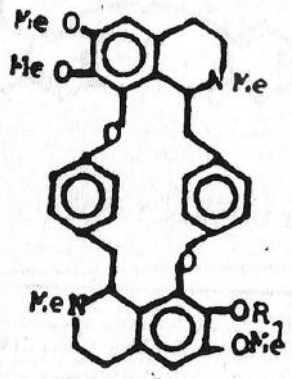
NAME OF COMPONENT	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
GILLETINE	*T. patens*		as above	—
CYCLEANINE	*C. owarensis*	 R_1 = Me	Chronic wounds, Cataract, Menstrual disorders, Protein diffi-ciency, and for causing abortion.	—

TABLE 1 (CONTINUED)

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS
TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

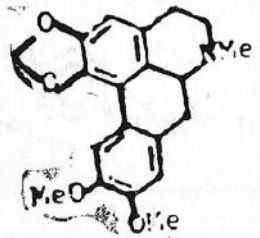
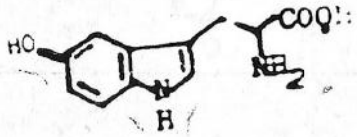
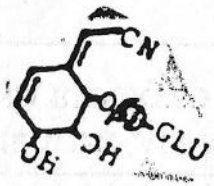
NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
ISOCHONDRODENDRINE	*C. owaresis*	R_1 = H	as above	—
DICENTRINE	*C. owarensis*		as above	—
5-HYDROXY-L-TRYPTOPHAN	*G. simplicifolia*		stimulates reproduction, wounds, enema and kidney ailments, vomiting, congestion of the pelvis, aphrodisiac.	—
GLIFFONIN	*G. simplicifolia*		as above	Anti-sickling properties, and slows down heart beat.

TABLE 1 (CONTINUED)

CONSTITUENTS OF SOME WEST AFRICAN MEDICINAL PLANTS
TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

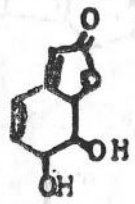
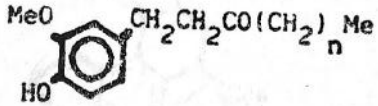
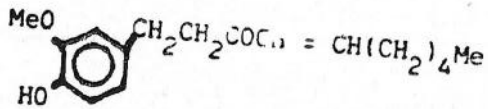
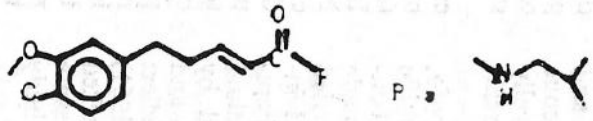
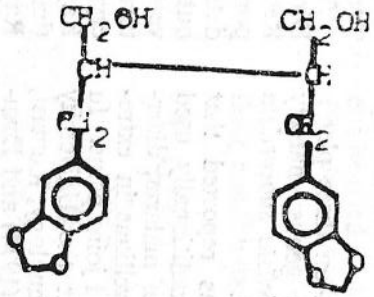
NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
GLIFFONINLIDE	*G. simplicifolia*		as above	—
6-PARADOL (n=6) 7-PARADOL (n=7)	*A melegueta*		Spice, Ingredients in herbal preparations	—
6-SHOGAOAL	*A melegueta*		as above	—
PIPERINE	*P. guineense*		Coughs, Intestinal diseases, Bronchitis, Veneral diseases, Colds, Rheumatism and Insect repeller.	anti-microbial
B-DIHYDROPIPERINE	*P. guineense*		as above	anti-microbial

TABLE 1 CONTINUED

CONSTITUENTS OF WEST AFRICAN MEDICINAL PLANT

TRADITIONAL USE AND REPORTED BIOLOGICAL ACTIVITY

NAME OF COMPOUND	PLANT SOURCE	CHEMICAL STRUCTURE	TRADITIONAL USE OF PLANT IN THE TREATMENT OF	BIOLOGICAL ACTIVITY
-DIHYDROPIPER-LONGUMININE	*P. guineense*		as above	—
DIHYDROCUBEBIN	*P. guineense*		as above	—

shown presumptive activity in leukaemia p. 388 test system. Funiferine may therefore be effective in tuberculosis. This is yet to be confirmed. When funiferine was quaternised, using methyl iodide in acetone, N,N-dimethiodide of funiferine was obtained. This has been demonstrated by Gyang, Ansa-Asamoah and others (1974) to have significant muscle relevant activity comparable to that of D-tubocurarine, a classical drug used to relax muscles of patients before surgical operations.

2. The Genus Triclisia (Menispermaceae) Plants Containing an Anti-tumour and Muscle Relaxants

We have worked on three plants belonging to this genus, namely *Triclisia patens*, *Triclisia subcordata* and *Triclisia gilletii*.

Irvine (1961) has reported that these plants are traditionally used for the treatment of malaria, diarrhoea, pyorrhea, swellings in extremities, anaemia and joint pains. In our laboratories at the University of Science and Technology, Kumasi, Tackie and others (1974) and Dwuma-Badu and others (1975) have isolated several alkaloids (Table 1). Of these, tetrandrine and its stereoisomers, phaethine, and isotetradrine are noteworthy and deserve comments. At the National Cancer Institute, Bethseda, U.S.A. Hartwell (1973) found that tetradrine was active as an anti-tumour agent and it was reported to have gone on clinical trial in a small way, in the United States. The other stereoisomers Phaenthine, Isotetradrine were however not active as anti-tumour agents, which meant that stereochemistry of these compounds is important at the receptor sites.

Also the N,N-dimethiodide of phaethine has also been demonstrated to have significant muscle relaxant activity (Kronlund and others (1970)' Gyang and others (1974) and Bamgbose and others (1981).

From the foregoing, it can be emphasised that *Tiliacora* and *Triclisia* groups of plants are rich in varying bisbenzylisoquinoline alkaloids which can be quaternised to give products which have significant muscle relaxant activity. The therapeutic effect and significance of these unexplored muscle relaxants must be investigated with the hope of putting some of them into clinical trials.

3. Cryptolepis Sanguinolenta: A Plant Containing Anti-inflammatory and Anti-Bacterial Agent

The root and stem of *Cryptolepis sanguinolenta* (Lindl) Schlecter (Asclepidaceae) are used in traditional medicine in Ghana for the treatment of malaria, wound infections and urinary tract infections. Aqueous extracts of these were tried clinically by Oku-Ampofo (1974) for the treatment of malaria in children.

At the request of Oku-Ampofo, Director for the Centre for Scientific Research into Plant Medicine, Mampong-Akwapim in Ghana, we made detailed literature search and carried out a systematic phytochemical investigation on this plant. The literature survey revealed that an alkaloid cryptolepine had been isolated by Raymon-Hamet (1937), (1938) and that it had been shown by Gellert Raymon-Hamet and Schlitter (1951) to be hypotensive; it caused a marked and prolonged fall in blood pressure in dogs as well as lowering of body temperature.

During the phytochemical investigation, Dwuma-Badu, Ayin, Fiagbe, Knapp, Schiff and Slatkin (1978), isolated Cryptolepine, quindoline and a third phenolic alkaloid coded CSA-3 (Table 1). From a grant No. 162 awarded to us by International Foundation for Science, Sweden, a large quantity of this alkaloid was isolated, this made it possible for the detailed pharmacological and microbiological studies reported to be undertaken.

Boakye-Yiadom and Dwuma-Badu (1977) showed that cryptolepine is active against both gram positive and gram negative organisms. Some of the test organisms are *Staphylococcus aureus*, *Bacillus subtilies*, *Escherichia coli* *Pseudomonas aeruginosa* and *Candida* albicans. Boakye-Yiadom and Heman Ackah (1979) have postulated the possible mechanism of action of crytolepine on these organisms and showed that crytolepine is bacteriostatic in low concentrations and bacteriocidal in high concentrations.

Because the crude drug is used in fevers and in the treatment of malaria in children pure sample of cryptolipine was sent to London School of Hygiene and Tropical Medicine for confirmation of anti-malarial activity. Peters (1981) informed us after the investigations that cryptolepine had no anti-malarial activity in the test system used in their laboratory. However, Peters reported that cryptolepine was active against Reckettsia-like organisms, Eperythrozoom coccoides common in laboratory mice. Because of this important observation, Peters (1981) has suggested that cryptolepine may have some potential interest in the treatment of other Rickettsia-like infection such as Anaplasma in cattle.

Again, samples of the alkaloid cryptolepine was sent to the College of Medicine, University of Lagos for detailed Pharmacological studies. In this investigation, Bamgbose and Noamesi (1981) have shown that cryptolepine inhibits carrageenen induced oedema and therefore can be useful in medicine as anti-inflammatory drug in the same way as asprin or indomethacin, though, cryptolepine was found to be a weaker anti-inflammatory agent compared to indomethacin. Also Noamesi and Bamgbose (1981) confirmed that cryptolepine has an alpha-adrenoceptor blocking properties and has the same potency as the drug known as Phentolamine.

From the foregoing, it appears cryptolepine is a "lead substance" just as morphine was a "lead substance" in the search for narcotic analgesics. There is therefore the need for a concerted effort to develop new antibiotics, new anti-hypertensives and new anti-inflammatory drugs from cryptolepine by preparing synthetic analogs and carrying out structure activity relationship studies. It is encouraging to mention here that Dwuma-Badu, Salako and Ablordeppey (1985) have started the synthetic work.

Because of the promising experimental findings on cryptolepine, in July 1983 the University of Science and Technology, Kumasi in collaboration with College of Medicine, University of Lagos and West African Pharmaceutical Federation organi-

sed an International Seminar in Kumasi on cryptolepine. At the seminar key papers presented were as follows:-

(*a*) Morphology and alkaloid distribution in *Cryptolepis sanguinolenta* by Dr. K. Sarpong.

(*b*) Isolation and characterisation of the alkaloids of *Cryptolepis sanguinolenta* by Prof. D. Dwuma-Badu.

(*c*) Some synthetic aspect of the chemistry of cryptolepine by Mr S. Y. Ablordeppey.

(*d*) Clinical use of *Cryptolepis sanguinolenta* by Dr. G. L. Boye.

(*e*) Some Pharmacological findings on the alkaloid cryptolepine by Prof. S. O. A. Bamgbose.

(*f*) Anti-inflammatory and other Pharmacological actions of the alkaloid cryptolepine.

(*g*) Toxicity study on cryptolepine by Dr. R. Ansa-Asamoah.

(*h*) Antimicrobial properties of cryptolepine by Prof. K. Boakye-Yiadom.

The proceedings of this important seminar has been delayed because of financial problems. It is however gratifying to note that the Faculty of Pharmacy, U.S.T. has formulated the crude extract of this plant into a suitable dosage form based on the recommendations at the seminar.

4. Rhigiocarya racemifera (Menispermaceae) A Plant Containing Analgesic and a Cytotoxic Principle

Rhigiocarya racemifera Miers (Menispermaceae) is found in Ghana and in other parts of West Africa. Irvine (1961 a) has reported that the leaves are used to treat common cold symptoms and the stem bark is an aphrodisiac. Though, Stuart, Chambers and Byfield (1969), prepared o-methylflavinantine by methylation of the alkaloid flavinantine obtained from the plant *Croton flaveus L.* (*Euphorbiaceae*), Tackie Dwuma-Badu, Knapp, Slatkin and Schiff (1974) were first to report the isolation of o-methylflavinatine as a natural product from *Rhigiocarya racemifera*. Dwuma-Badu and others (1980 a) reported the isolation of the alkaloids N-methylcorydine and magnoflorin along with o-methylflavinantine from *Kolobopetalum auriculatum* Engl (Menispermaceae). Apart from o-methylflavinantine Dwuma-Badu and others (1980 b) isolated liriodenine, palmatine, menisperine and magnoflorin again from *Rhigiocarya racemifera*.

As a result of the structural similarity of o-methylflavinantine to the classical narcotic analgesic, morphine (Table 1) Gyang, Dwuma-Badu, Ayim, Noamesi and Ansa-Asamoah (1975) pharmacologically investigated o-methylflavinantine and found that it has one-tenth the potency of morphine as an analgesic.

Again through the research grant No. 162 awarded by the I.F.S., Sweden to us, large quantities of o-methylflavinantine was re-isolated and further pharmacological work conducted in the University of Sydney, Australia by Ansa-Asamoah and Starmer. A comparative analgesic studies between o-methylflavinantine and morphine in the mouse was carried out by Ansa-Asamoah (1981) and Ansa-Asamoah and Starmer (1971, 1981). The results showed that maximum analgesic effect due to o-methylflavinantine (150 mg/hg) occurred one hour after an intraperitoneal injection and that of an equiactive does of morphine and 0-methylflavinantine (i.p) were 7.5 ‡ 2 28 and 75.8 ‡ 10.48 mg/kg respectively with a potency ratio 10:1 (Morphine ‡ 1.0). The analgesic effect of 0 methylflavinantine was naloxone reversible which suggests an opiate recptor interaction. Ansa-Asamoah (1981) reported that there was an apparent lack of physical dependence liability on 0-methylflavinantine and unlike morphine which depresses respiration, 0-methylflavinantine stimulates respiration.

Liriodenine is another important alkaloid found in *Rhigiocarya racemifera*. It was first isolated by Buchanan and Dickey (1960) from *Liriodendron tulipifera* L (Mangnoliaceae). The alkaloid has demonstrated a cytotoxic activity against the 9-KB cell culture and this effect was reported by Warther, Gooden and Jacobson (1969). Also, Manske (1975), reported that palmitine, another alkaloid present in *Rhigiocarya racemifera* has positive, inotropic, adrenocorticotropic, analgesic and antibacterial action, while a fourth alkaloid, magnoflorin, has hypotensive and curare-like action in animals.

The plant therefore appears to be very important in having compounds of varying pharmacological activity. It will be suggested at this stage therefore that because of the presence of 0-methlyflavinatine and Liriodenine the plant *Rhigiocarya racemifera* be cultivated on a large scale to obtain these important compounds for further experimentation and possible clinical trial. In my opinion the tincture from this plant can be tried on some cancer patients. The cytotoxic and the analgesic principles may have beneficial effects on such patients and would improve their conditions.

5. Griffonia simplicifolia (Caesalpinaceae) A Plant containing An Anti-Sickling Agent

The plant *Griffonia simplicifolia* Baill also called *Bandeiria simplicifolia* Benth (Caesalpinaceae) it is also called "Kagya" in Akan and is found in Ghana and other parts of West Africa. Irvine (1961 f) has reported that the leaves are fed to sheep and goats to stimulate reproduction while the wood is used as chewing sticks. In traditional medicine, the leaves are used to aid healing wounds while the leaves juice is used as enema and for treatment of Kidney ailments. A decoction of the stems and leaves is used to stop vomiting, to treat cognestion of the pelvis and as aphrodisiac. In Nigeria, a herbalist is reported to use this to control sickle cell crisis.

The seeds of this plant contain several indole derivatives, which have been reported by Bell and Fellows (1966) who showed the presence of 5-hydroxy-L-tryptophan and later Fellow and Bell (1970)

again isolated 5-hydrozytryptamine, and tryptophan 5-hydroxylase. Also Makela and Makela (1956) and Makela and Krupe (1959) isolated and characterised Phytohemaglutinin from freshly harvested seeds. In our investigation involving the roots of this plant, Dwuma-Badu and others (1976) isolated two novel compounds griffonin and griffonilide along with 5-hydroxytryptophan. In prelimary studies Aloka (1977) showed in our laboratories that griffonin has an anti-sickling properties and indicated also that it slowed the heart beats of experimental frogs.

(*a*) *Effect of Griffonin on Sickle Cells*

Aloka and Gyang (1977) showed that a freshly prepared 1% w/v aqueous griffonin solution effectively changed the sickle shape of the sickled cells to the normal biconcave disc shape of normal red blood cells (Table 2a). 0.5 w/v aqueous solution of griffonin changed only few of the sickle cells to normal shape of the red blood cells. These tests were done using 2%w/v sodium metabisulphite as a control on normal cells and on sickled cells obtained from patients. Using only the antioxidant, sodium metabisulphite, the number of sickle cells were so numerous as compared with the normal cells in the blood sample (See Table 2).

(*b*) *Effect of Griffonin on Sodium Content of Sickle Cells*

In a study to determine whether griffonin alters red cells sodium content *in vitro* in the cells of normal subjects and patients with sickle cell disease, at the College of Medicine, University of Lagos, Larmie, Poston, Owolabi, Dwuma-Badu and Akinyaju (1985) found that Griffonin may increase cell sodium in patients with sickle cell disease. This elevation may lead to an anti-sickling effect, due to a subsequent rise in cell water.

Larmie and his colleagues made the above postulate based on a comparative study made on griffonin and oaubain, a cardiac glycoside known to inhibit sodium transport and so increase RBC sodium. They used erythrocytes which were obtained from heparinised venons blood from normal control subjects and patients with sickle cell disease. The cells were divided and simultaneously incubated in (1) Tris buffer (2) Tris buffer plus oaubain and (3) Tris buffer + griffonin. The final concentrations for both ouabain and griffonin tested were 0.5 or 1.0m M/L. Samples of cells were taken for estimation of sodium over a period of 8 hours.

Intracellular sodium did not change over the period of incubation in the cells of control subjects when incubated in buffer alone, but increased significantly at both concentrations of ouabain tested. Griffonin had no significant effect on cell sodium in normal subjects RBCs at either concentrations tested (Fig. 1).

In the cells of patients with sickle cell disease however, both ouabain and griffonin showed significant increase particularly at the higher concentrations. At a lower concentration, griffonin did not have significant effect (Fig. 1).

(*c*) *Possible Application of Griffonin*

It is known in the literature that some forms of treatment in sickle cell disease are effective since they result in swelling of the erythrocyte and subsequent reduction of sickling. This has been demonstrated by Lee and others (1981) using the drug cetiedil. This drug is known to increase cell sodium and so leads to the swelling of the cell. Guy and others (1973) have demonstrated that hypotonic saline causes swelling of sickle cell, by a process of osmosis and this technique may be used to control sickle cell crisis. Sickle cell disease affects about 25% of the black race. It is hoped that these preliminary observations on griffonin could be re-examined so as to evaluate critically the therapeutic value of griffonin as anti-sickling agent for the Black race and for mankind.

6. The Plant Amomum melegueta Roscoe (Zingiberadeae)

It is also known as Grains of Paradise, Guinea Pepper or Melegueta pepper. It is also called in Akan "famwisa". In Ghana the fruits like the fruits from *Piper guineense*, are used as spice and as ingredients in several herbal preparations which are used for treatment of coughs, intestinal diseases, bronchitis, venereal diseases, colds and for rheumatism. Connell (1970) examined Grains of Paradise from Equitorial Africa and obtained gingerol and (6)-paradol as the major constituents with traces of (6)-shogaol, (8)-gingerol and (8)-paradol.

In our own studies using the Ghanaian samples, Tackie and others (1974 c) obtained (6)-paradol, 7-paradol (6)-shogaol and traces of gingerone and (8)-paradol. This was in the first time (7)-paradol appeared in nature, however ano sgingerol was found, this emphasises the presence of chemical variation in the seeds of plants from various sources in Africa and the need to work on all of them. It appears to me that the acetone extract of the seeds acts in the same way like methyl salicylate and menthol when applied to the skin. The extract from the seeds can therefore be used in pomades and in liniments to be used for muscular pain and in rheumatism.

7. Piper guineense (Piperaceae) A Plant containing Several Anti-bacterial Agents

Piper guineense Schum and Thonn, is also known as West African Black pepper or Ashanti pepper. It is called "Surowisa in Akan". This plant has been shown by Irvine (1961 g) to occur in Ghana and in other parts of West Africa. Traditionally it has been used for the treatment of coughs, intestinal diseases, bronchitis, venereal diseases, colds, rheumatism and as insect repellant.

The ligand yamgambin was isolated from the fruit of this plant by Haensel, Leuckert and Schulz (1966). Also Haensel and Zender (1961) and Haenzel Pelter (1969) have reported the presence of (=) sesamin and (+) Ashantin from this plant. Also Okogun and Ekong (1974) have isolated a series of Piperine-type amides five new amides, three dienanides and two trienamides from the fruits of this plant. Examination of the fruits,

The Effect of Griffonin and Ouabain in Vitro on the Sodium Content of Normal Subjects and Patients with Sickle Cell Disease

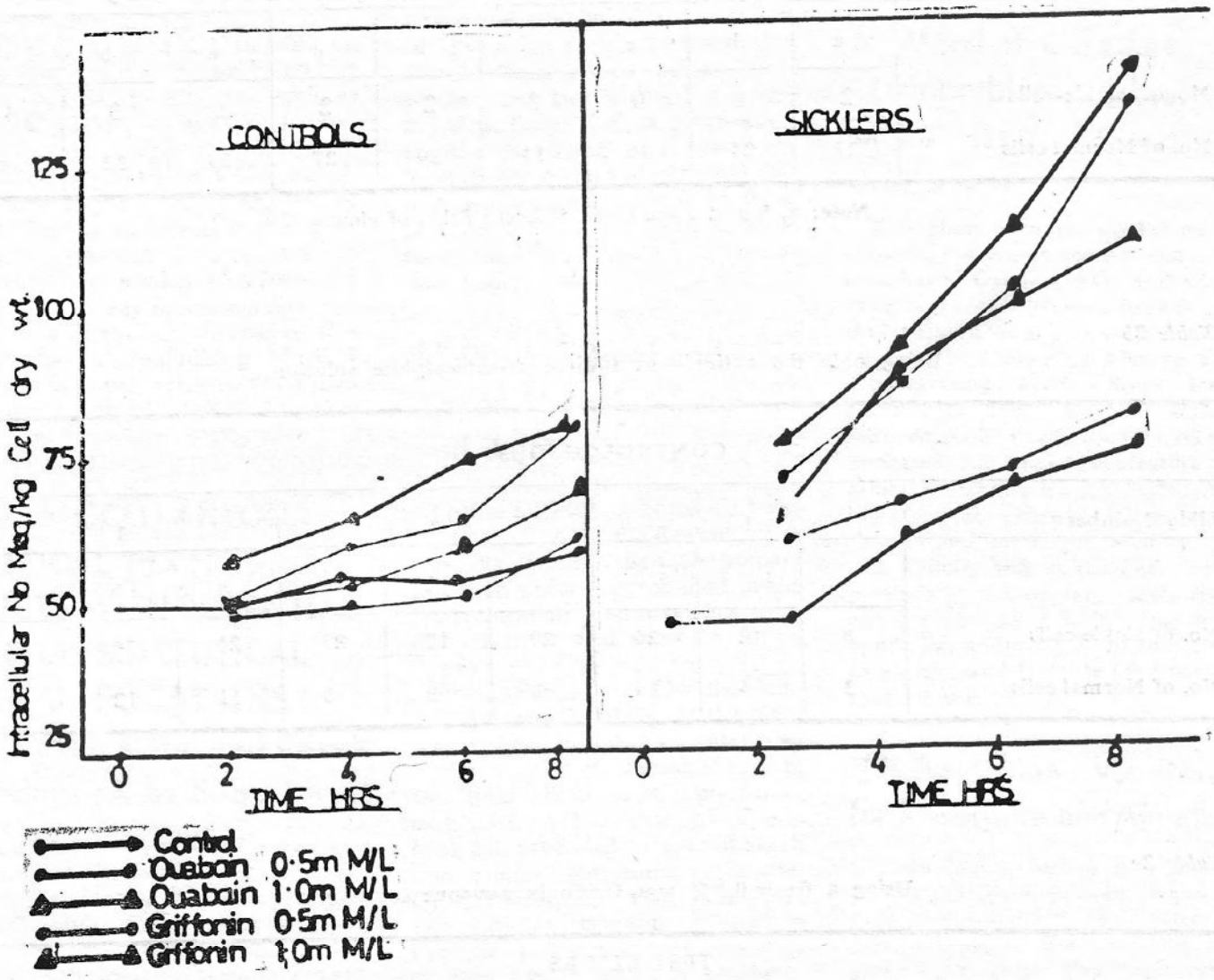


Table 2

RESULTS OF TEST SLIDES SHOWING ESTIMATION OF THE proportion of sickle cells to normal cells IN DIFFERENT FIELDS OF VIEW

Table 2a

Using fresh 1% w/v aqueous Griffonin solution.

TEST SLIDES

Slide Number	1			2			3		
	a	b	c	a	b	c	a	b	c
No of Sickle-cells	2	1	0	3	2	2	6	3	4
No. of Normal cells	27	24	19	14	20	27	39	32	38

Note: a, b and c are three different fields of view.

Table 2b

Using only the antioxidant sodium metabisulphite solution.

CONTROL SLIDES

Slide Number	1			2			3		
	a	b	c	a	b	c	a	b	c
No. of Sickle-cells	8	12	26	20	17	23	21	34	27
No. of Normal cells	3	4	10	8	9	8	11	12	9

Table 2c

Using a fresh 0.5% w/v Griffonin aqueous solution.

TEST SLIDES

Slide Number	1			2			3		
	a	b	c	a	b	c	a	b	c
No. of Sickle-cells	10	7	9	12	17	7	19	12	13
No. of Normal cells	17	12	31	26	30	18	34	21	28

the roots and the leaves of this plant by us, Dwuma-Badu *et al.* (1976 b) yielded piperine, N-isobutyloctadeca trans-2-trans-4-dienamide, sylvatine, -dihydropiperine, trichostachine and -dihydropiperlongumininine, a new lignan, dihydrocubebin, and cubebin.

Finally because of the traditional use of this plant in Ghana, the isolated compounds were examined for antimicrobial activity. Piperine, dihydropiperine, dihydropiperlongumine and dihydrocubebin showed anti-microbial activity against *Mycobacterium smegmatis* 607B (ATTC 607) (100 g/ml). In addition piperline exhibited antimicrobial activity against *Candida albicans* (ATTC 1023) (100 g/ml) and dihydropiperine against *Klebsiella pneumoniae* AD (1003) 100 ug/ml.

These findings justify the use of this plant in traditional medicine in coughs, venereal diseases, and in bronchitis. It is also significant to note that Ayitey Smith has reported that one of the constituents of this plant has a trinquilising effect. I suggest we use extracts from this plant in cough mixtures in pharmacy practice.

8. MISCELLANEOUS LOCAL PLANT PRODUCTS WITH POTENTIAL PHARMACEUTICAL APPLICATIONS

(a) Cassia alata and Cassia podocarpa as Substitutes

Cassia podocarpa and *Cassia alata* belong to the family Leguninaceae. *Cassia podocarpa* is called "Sempenini" while *Cassia alata* is called 'Sempe' in Akan language. Traditionally the leaves of these plants are boiled and drunk as purgative. These plants are also used for the treatment of skin diseases such as eczema, scabies and ring worm.

Cassia alata: The purgative principles are anthraquinones Rao (1975) and Villaroya and others (1976) have found that the leaves contain kaempferol, rhein, aloe emodin, cistosterol, chrysophanol. Harrison and others (1977) found that the glycosides present in *C alata* leaves were similar to sennosides found in *C.* acutifolia and *C.* angustifolia.

C. alata leaves are reported by Fuzellier, Mortier and Lactard (1982) to have antifungal activities.

Dequenois and Anton (1968) reported that *C. podocarpa* contain sennosides A and B, rhein, anthrone glycosides, rhein, and rhein glucosides. In our laboratories at U.S.T., Ablordeppey found that *C. podocarpa* contained about 1% total anthraquinones glycoside and concluded that shade drying preserved the content of anthraquinones glycosides. It appears reasonable that in West Africa we can substitute these two plants for *Senna* in 'Mist. Senna Co', a preparation popular in Ghana. It is gratifying to note that Ayim and others (1984) have written a monograph on these two plants which are to be published by the West African Pharmaceutical Federation.

(b) Plantain Peel and Cocoa Husk for Soap and Antiseptics

Gyane (1973) has noted that the solutions from the ashes of these products can be used to prepare soft soap which may be used in the preparation of Chloroxylenol solution (Dettol) and cresol solution (lysol).

Baafi, Effisah and Dwuma-Badu (1983) found that 100g. of the plantain peel ash in 120ml of water produced a solution containing 52% w/v total alkali mainly potassium carbonate. While that of Cocoa husk ash produced 47% total alkali also mainly potassium carbonate. Of the three oils, Palm oil, Palm kernel oil and coconut oil, used in local soap formulations, coconut oil gave a better soap. A combination of 80% coconut oil and 20% palm oil with cocoa husk ash solution (47% w/v) gave a good quality soap. The quality of the soap is improved when lemon grass oil is added to the soap, before it hardens, during its preparation. The lemon grass oil, acts as antioxidant, antifungal and deodorising agent.

The formula for the preparation of a 500gm good local soap is as given below:

(i) Coconut oil	250gm
Cocoa alkali (46.78% w/v K_2CO_3)	175ml;
Lemon grass oil (0.019 g/drop)	89 drops
Water to	1000ml.
OR	
(ii) Coconut oil	200gm
Palm oil Bleached	50gm
Cocoa alkali (46.78% w/v K_2CO_3)	166.6ml
Lemon grass oil (0.019 g/drop)	89 drops
Water to	1000 ml

(c) Manihot utilissima (Euphorbiaceae) Starch for Tablets and Glucose Production

This plant is commonly known as cassava, the tubers form staple food in Ghana. Gyane (1973) and some other workers in Nigeria have found that cassava and maize starch can be used in tablets as binding and disintegrating agent. Since large amount of inert materials starch, microcrystalline cellulose (avicel) are imported for the Manufacture of tablets in Ghana we can replace the imported starch with those from cassava and maize prepared locally. The Faculty will in the near future produce starch on large scale from cassava and by acid or enzymalic hydrolysis convert part of the starch to glucose and fructose for Pharmaceutical use.

(d) Rauwolfia vomitoria for Reserpine and Ajmaline

Rauwolfia vomitoria also known as "Kakampempen" in Akan is used traditionally in the control of certain types of madness and also as an aphrodisiac. The major active principle is reserpine and it is believed that the aphrodisiac effect is probably due to its yohimbine content.

Reserpine is also used as a major tranquiliser and as an anti-hypertensive agent either alone or in combination with other drugs as 'Brinerdin'. The Faculty has developed a simple method for obtaining reserpine from this plant.

The root bark is percolated in

6% acetic acid and extracted with chloroform and the concentrated chloroform extract dissolved in a limited quantity of alcohol and then basified with strong ammonia to give a yellow precipitate. This precipitate is dissolved in absolute alcohol and reserpine crystallises out.

Problems, Progress and Potentials of Medicinal Plant Research

(*a*) *Problems*

Problems in this type of research is mainly due to finance. The Government of Ghana has however always supported our research into medicinal properties of our plants. We have also received active support from International Foundation of Science, Stockholm, Sweden. Again sophisticated equipment necessary for obtaining quick and rapid results are not available, we therefore have to collaborate with other institutions outside Ghana which have such facilities. This causes a lot of delay.

(*b*) *Progress and Potentials*

We have achieved a lot of results, we have been able to show that some of our plants contain analgesics, anti-inflammatory, anti-tumour and anti-sickling agents. As pharmacists we have trained other pharmacists and scientists by using materials from medicinal plants as topics for their dissertations for B. Pharm, M.Sc. and Ph.D. degrees.

CONCLUSION

It is incumbent on us as pharmacists to put our heads together with clinicians, biochemists and pharmacologists, to formulate some of these products so that they can be integrated into our health care delivery system. It is hoped that if we are able to integrate some of our medicinal plant products into our health programme, our government may be able to conserve some of the much needed foreign exchange used in the importation of some common drugs.

To conclude that some African plants contain active principles which can control some types of the terribly frightful disease generally known as cancer, some African plants can control the blackman's disease commonly known as sickle cell disease, some of our plants can cure infections, control pain and prevent inflammation. A pharmacists from Africa we are telling the whole world the progress and the therapeutic potentials of our plant products.

ACKNOWLEDGEMENTS

I wish to express my sincere appreciation and thanks to the Ghana Government, University of Science and Technology, Kumasi and to International Foundation of Science Stockholme, Sweden for financial support. I also wish to thank Prof. Paul L. Schiff Jr. of University of Pittsgurgh (PA) and Dr L. Poston of St. Thamas' Hospital, London and Mr Owolabi and Dr E. T. Larmie, Dr B. K. Noamesi and Prof. S. O. A. Bambgose of University of Lagos and all my colleagues in the Faculty of Pharmacy, U.S.T. for their excellent contributions to the Scientific work presented in the lecture.

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LIST OF REFERENCES

ADDAE-MENSAH, I., OKOGUN, J. I. TORTO, I. V., & DIMONYEKA, C. I. (1977). Seasonal and geographical variations in the constituents of Piper guineense. Proceedings of 3rd Symposium On Medical Plants, University of Ife, Nigeria; July, 1977.

ANSA-ASAMOAH, R. (1981) Studies on the Pharmacology of 0-methylflavinantine Ph. D. Thesis, University of Syndney, Australia.

ANSA-ASAMOAH, R. & STARMER, G. A. (1979). Actinoceptive properties of 0-methylflavinantine in rats and mice. *Proc. Aus. Physiol.. Pharmaco. Soc.* 10, 166.

ANSA-ASAMOAH, R. & STARMER, G. A. (1981) Pharmacological activity of the active principle of Rhigiocanya *racemifera.* Proceedings of the 4th Symposium on Medicinal Plants, University of Ife, Nigeria, July, 1981.

ALOKA, A. (1977). Pharmacological studies on griffonin. B. Pharm. Dissertation, U.S.T., Kumasi, Ghana.

AYIM, J. S. K., DWUMA-BADU, D,. FIAGBE, N. Y., ATEYA, A. M. SLATKIN, D. J., KNAPP, J. E. & SCHIFF, P. L. Jr. (1977). Constituents of some West African Medicinal Plants XXI. Tiliacora funifera lloydia 40(6), 561-565.

BAMGBOSE, S. O. A. (1981). Personal Communication, University of Lagos, Lagos, Nigeria.

BAMGBOSE, S. O. A., & NOAMESI, B. K. (1981). Studies on Cryptolepine II. Inhibition of Carrageenan induced Oedema by Cryptolepine. Planta Medica 41, 392 - 396.

BELL, E. A. & FELLOW, L. E. (1966) Occurrence of 5-hydroxy- L-tryptophan as a free plant amino acid. Nature (London) 210, 529.

BOAKYE-YIADOM, K. & DWUMA-BADU, D. (1977). Antimicrobial action of Cryptolepine hydrochloride. Proceedings of 3rd Symposium on Medicinal Plants, University of Ife, Nigeria. p. 91.

BOAKYE-YIADOM,)'K& HEMANACKAH, S. M. (197 9 Cryptolepine hydrochloride: effect on Staphylococus aureus. J. Pharm. Sci. 68 12.

BUCHANAN, M. A. & DICKEY, E. E. (1960). J. Org. Chem. 25, 1389.

CONNEL, D. W. (1970). Aust. Chem. 23, 369.

DWUMA-BADU, D., AYIM, J. S. K., TACKIE, A. N. KNAPP, J. E. SLATKIN, & SHIFF, P. L. Jr. (1975a). Additional alkaloids of Triclisia patens and Triclisia subcordata. Phytochemistry 14, 2524-2525.

DWUMA-BADU, D., AYIM, J. S. K., MINGLE, C. A. TACKIE, A. N., SLATKIN, D. J. KNAPP, J. E. & SCHIFF, P. L. F. (1975). Alkaloids of Cissampelos pareira. Phytochemistry 24, 2520 - 2521.

DWUMA-BADU, D. AYIM, J. S. K., DABRA, T.T., ELSHOLY, H. N., KNAPP, J. E., SLATKIN, D. J. & SCHIFF, P. L. Jr. (1976). Constituents of Piper guineense. Lloydia 39(1), 60 64.

LARMIE, E, T., POSTSON,L, OWOLABI M, DWUMA-BADU, D. and AKINYANJU O. (1985) to be published.

LEE, R., BECKOWITZ, OMINGER E. P. (1981). effect of Cetiedel, on invitro anti-sickling effect agent, on erthrocytes membrane cation permeability clin, invest. 68., 1215 - 1220.

DWUMA-BADU, D., WATSON, W. H, COPALAKRISHNA, E. M., OKARTER, T. U. KNAPP, J. E., SCHIFF, P. L. Jr. & SLATKIN, D. J. (1976) Griffoni n and Griffonilide, Novel, constituents of *Griffonia Simplicifolia* Lloydia 39(6), 385-390.

DWUMA-BADU, D., OKARTER, T.U. TACKIE, A.N., LOPEZ, J.A. SLATKIN, D. J. KNAPP, J. E. SCHIFF, P. L. Jr. (1977). Funiferine N-Oxide, A new alkaloid from *Toliacoral. funifera* (Menispermacae). J. *Pharm* Sci. 66(9), 1242-1243.

DWUMA-BADU, D., AYIM, J. S. K., WITHERS, S. F., AGYEMAN, N. O., ATEYA, A. M., AZIZI, E. L. KNAPP, J. E. SLATKIN, D. J. & SHIFF, P. L., Jr. (1980b).constiteunts of West African Medicinal Plants XXVII. Alkaloids of *Rhigiocarya racemifera* and *Stephania dinklagei.* J. Natural Products 43(1).

FELLOW, L. E. & BELL, E. A. (1970) 5-Hydroxy-L-tryptophan, 5-hydroxytryptamine and L-tryptophan-5-hydroxylase in *Criffonia Simplicifolia Phytochemistry* 9, 2389.

GELLERT, RAYMOND-HAMET & SCHLITTLER (1951). Helv. chim. Acta 34, 642

GUY, R. B., GAVRILLS, P.K., ROTHENBERG, S. P. (1973) Invitro and In vivo effect of hypotonic saline on the sickling Phenomenon, Am. J. Med. Sciences 226-4 267-227.

GYANG, E. A., ANSA-ASAMOAH, R. & NOAMESI, B. K. (1974). Unpublished data.

GYANG, E. A., DWUMA-BADU, D. AYIM, J, S. K., NOAMESI B. K. & ANSA-ASAMOAH, R. (1975). Pharmacological activity of O-methylflavinantine compared with morphine on the guinea-pig ileum. *Ghana Pharm.* J. 3 13-139.

HAENSEL, R. C., LEUCKERT & SCHULZ, G. (1966). Isolation of a new lignan (yangambin) and its correlation with piperine. *Z. Naturforsch* 21530.

HARTWELL (1973). National Cancer Institute. Private communication to Tackie and Paul Schiff.

IRVINE, F. R. (1961). *Woody Plants of Ghana* London. Oxford University Press (a) p. 33, (b) p. 36, (c) p. 36-37, (e) p. 308, (g) p. 40.

KRONLUND, A. K., ARISTIANSSON & SANDBERG, F. (1970). The Occurrence of Phaenthine and N, N-dimethylphaenthine in *Triclisia dictyophylla* and *Triclisia patens. Acta Pharm. succia* 7, 279.

MANSKE, R. H. F. (1975) The Alkaloids Vol. XV. Academic Press, New York. P. 235.

MAKELA, O. & MAKELA, P. (1956). Some new blood group specific plant agglutinin, a preliminary report. Ann. Med. Exp. Biol. Fenn. 34 402.

MAKELA, O., MAKELA, P & KRUPE (1959). The specifivity of the anti-phytohaemaglutinin Z. Immunitaetsforscn Exp. Thera 117, 220.

NOAMESI, B. K. & BAMGBOSE, S.O.A. (1980). The Alpha-Adrenoceptor Blocking Properties of Cryptolepine on the rat isolated Vas Deferens. Planta Medica 39 51-56.

OKOGUN, J. I. & EKONG (1974). Extracts from the fruits or Piper guineense. J. chem. Soc. Perkin 1 1974 2195.

OKU-AMPOFO (1974). Director, Centr, for Scientific Research into Plant Medicine, Mampong. Akwapim. Ghana. Personal communication.

PETERS, W. (1981). London School of Hygiene and Tropical Medicine. Personal Communication.

RAYMON-HAMET, C. R. *Sec. Biol.* 126, 678.

RAYMON-HAMET, C.R. *Acad. Sci.* 207 1016.

STUART., K. L. CHAMBERS, C. & BYFIELD, D. (1969). J. *Chem. Soc. C.* 1681.

TACKIE, A. N., DWUMA-BADU, D• KNAPP, J. E. & SCHIFF, P. L. Jr. (1973). Nortiliacorinine A and Nortiliacorine--A from *Tiliacora funfera* Phytochemistry 12, 203-205.

TACKIE, A. N., DWUMA-BADU, D., KNAPP, J. E., SLATKIN, D. J. & SCHIFF, P. L. Jr. (1974a). O-methylflavinatine from Rhigiocarya racemifera. *Phytochemestry* 13., 2884.

TACKIE, A. N., DWUMA-BADU, D., OKARTER, T., KNAPP, J. E., SLATKIN,D. J. & SCHIFF, P. L. Jr. (1974b). The isolation of alkloids from selected Triclisia species. *Lloydia* 37(1), 1-45.

TACKIE, A. N., DWUMA-BADU, D., KNAPP, J. E., SLATKIN. D. J. SHIFF, P. L. Jr. (1974d). Hydroxyphenyl alkanones from Amomum melegueta. Phytochemistry 14, 853-854.

WARTHEN, D., GOODEN, E. L. & JACOBSON, M. (1969). J. Pharm. Sci. 58, 637.

Orthodox and Traditional Medicine Marriage for the Future

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INTRODUCTION:

The science and the art of treatment and prevention of disease is pre-historic. Since his earliest days, man has relied on natural products for the sustenance of life. Ancient men had little or no knowledge of the medicinal values of natural products and discovered them by trial and error or by accident or observation of the instinctive discrimination of plants by animals. The knowledge so acquired was tried and when found successful formalised into traditional medicine. Such findings were repeatedly used over centuries and resulted in the accumulation of a store of information on the medicinal values of herb and thus laid down some foundation upon which modern medicine was built.

Definitions

Medicine is the art and science of restoring and preserving health especially by means of remedial substances. There are various methods for the treatment and prevention of disease. These are usually grouped into two, namely orthodox medicine and traditional medicine. A third group overlaps these two major categories e.g. homeopathy.

Orthodox, scientific, official, modern or conventional medicine deals with a so-called rational and systematic analysis of natural events relating to causes and treatment of disease. Phenomena are observed described and classified by inductive reasoning to arrive at facts in the systems of beliefs. Hypotheses are derived and from general principles certain deductions are made. These predictions are verified through experiments and accepted or dismissed. Scientific medicine provides knowledge which can be communicated to others and which can be verified by anyone. In scientific methodology causation of disease by supernatural powers has no place.

Tradition is defined as the opinion or belief or established practice in a community handed down from ancestors to posterity and usually not committed to writing. Traditional medicine, also known as indigenous, unorthodox, alternative, folk, ethno,

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with the other members of the Health Team; and to train Chemical Sellers to effectively undertake retail sales of Class "C" drugs particularly in the rural areas and also intensify the education of the general public on proper drug handling.

(xii) The Faculty of Pharmacy should be charged with the responsibility of collating information geared towards the integration of traditional therapy with orthodox medical practice in the rural areas.

(xiii) A Pharmaceutical Task Force should be set up inter alia to map out areas with or without adequate medical and pharmaceutical services with the view to encouraging the provision of the said health services in these areas.

(xiv) The Society at large must be made aware of the potential in joint community/pharmacist ventures in the rural areas and the Government should be made aware of the need for joint Government private co-operation in the running of the said pharmaceutical ventures especially in the rural areas.

Whilst making these recommendations we realise that the objective of expanding qualified pharmaceutical services to all the rural areas cannot be attained in the short term. However, immediate steps should be taken by the authorities to adequately staff and equip dispensaries in such important district centres as Kibi, Nsawam, Tarkwa, Dunkwa-on-Offin to mention a few thereby bringing us closer towards the fulfilment of the programme for providing health for all by the year 2000.

fringe or unofficial medicine is therefore used to indicate health care practices based on the social, cultural and religious attitudes prevalent in the community as practised by scientifically untrained personnel.

Traditional Medicine

Various forms of traditional medicine are available all over the world e.g. Yoga, Acupuncture and Ayuverdics. In Ghana and indeed the West African sub-region, two main types of traditional medical practitioners may be identified. The first type among other things utilises herbs but the ability of the herbal treatment is sought in terms of the powers of the spiritual world. They are referred to as fetish priests who have shrines and according to their way of practice, the primary requisite to become ones possession by a deity. The service of the fetish priest is performed through the utilisation of magico-religious concepts and acts. The second type of practitioner deals mainly with herbs and is called a herbalist.

Most West African traditional Societies believe in the existence of a supreme unseeing being who created the world and all things that there are in it and over which He has a supreme influence. They also believe that there are other gods and spirits through whom He (the supreme being) works. The spirits are able to make petitions to the supreme being on behalf of members of their community and to obtain protection for them. These societies further believe in the existence of evil spirits like demons, witches and wizards and also in life after death and therefore in ancestral spirits who are considered to have a profound influence on the life of an individual of the society.

The traditional healer describes positive health as the blending of physical, mental, social, moral and spiritual welfare of the individual. Sickness is also believed to be brought about among other things by spells from evil spirits, ancestral spirits and gods sinned against and as a result of anti-social behaviour and the breaking of taboos and norms of the society. It is not surprising then that some traditional healers use magico-religious acts in practice. Exactly what role spiritualism, psychism or fetishism play in traditional medicine is uncertain, difficult to evaluate and beyond my scope of competence.

It is in this light that I consider it expedient to limit my contribution to herbal medicine or phytotherapy. Where necessary however I will make reference to the other aspects of traditional medicine. Although the topic demands a treatise on both orthodox and traditional medicine, orthodox or scientific medical practice is so well established, familiar, and acceptable. It does not therefore serve much purposes to attempt to describe it and enumerate its advantages and disadvantages.

On the other hand, herbal medicine for that matter traditional medicine is controversial and our knowledge on it, is rather scanty. The points raised in this discussion will therefore largely relate to traditional medicine.

Positive aspects

In both the curative and preventive sense, herbal medicine has offered a lot, particularly to our rural folk. The traditional healer claims the ability to handle all types of ailments ranging from simple wounds to tumours.

In obstetrics and gynaecology herbs have been used to promote the healthy growth of the foetus and to prevent miscarriage in pregnancy. Such vitaminised plants like *Fluerya aestuans* (Urticaceae) and *Piper unbellatin* (Piperaceae) and cocoyam leaves are given weekly in palm-soup preparations *Phyllanthus amarus* Euphobiaceae are boiled, mixed with a little kaolin and given thrice daily for threatened abortion. Easy delivery is achieved by the expectant mother taking one teaspoonful of finely-powdered bark of *Colagigantea* (Sterculiaceae) in porridge once daily during the last week before delivery. Post-partum haemorrhage is often dealt with successfully by giving the patient a decoction of the leaves of *Pondias mounbin* (Anacandiaceae) or *Hoslandia opposita* (Labiatae) or *Paullinia pinnata* (Sapindaceae) or the bark of *Erythrima mibreadii* (Papilionaceae) prepared in palm soup. For expelling retained placenta any of the following preparations may be used: a decoction of the root of *Pileostigma thonningii* (Caesalpinanceae) or a handful of the leaves of *Corchorus aestinans* Tiliaceae, in a glassful of water, or the bark of pawpaw *Carica papaya* or leaves of Newbouldia Bignonaceae chewed with a little salt.

In other diseased states herbalists have claimed a lot of success. There are many reported cases of traditional medicine successfully dealing with such ailments as compound fractures which have failed to respond to scientific medical treatment. In the field of infertility treatment there are many undocumented reported cases of women who though pronounced barren by scientific medicine have become pregnant after treatment with herbal drugs. Herbal medicine has also been used successfully in the treatment of diabetes and also asthma and other bronchial ailments.

Some of these claims have been confirmed at the Centre for Research Into Plant Medicine at Mampong-Akwapim which represent a most practical way of intermarrying orthodox and traditional medicine. This Centre has been set up to research into medicinal plants and to evaluate some of the folklore remedies as claimed by traditional healers. The Centre runs a clinic manned by orthodox or western-type doctors who diagnose diseases in the scientific or conventional manner but in additional to orthodox drugs administer herbal preparations recommended by traditional healers, some of them, employed by the centre. A decoction of the leaves of *Canthium glabriflorum* is reputed to be one of the most effective cures for hypertention at the Centre. A decoction of the leaves and stems of *Desmodin adscendens* and *Theominingin sanguinea* are effective for asthmatic attacks. The leaves of *Anthocleista nobilis* and *Bridelia ferrunginea* are effective antidiabetics. A decoction of the leaves of B. *ferrunginea* for example is reported to lower the fasting blood sugars of patients considerably within 12 weeks. This is remarkable since none of the modern antidiabetic agents can cure this disease.

From the point of view of modern methods of drug evaluation, it may be argued that since the phytochemical and pharmacological data are not available such claims cannot be

acceptable. It is most likely that if systematic scientific analysis is carried out on the plants, compounds will be found which exhibit the activity attributed to the herbs. I make this assertion from past experience and available data. If you will again permit me, I will illustrate with the following examples.

Cola species were used by our people to keep awake long before it was established that they contain caffeine and related xanthine bases which are stimulants. Locally some species, varieties or hybrids are considered to be more Potent than others. Examination of a number of varieties and hybrids of two species, *Cola acuminata* and *Cola nitida* revealed that they differred considerably in the quantities of their caffeine content thus giving rise to the phenomenon of intra specific variability. This probably explains why indigenes prefer to take certain varieties of kola rather than others.

The fruits of *Solanum torvum* (Solanaceae) are used traditionally as a lactogogue for nursing mothers. Our analysis of the fruits indicated the presence of a steroidal sapogenin called hecogenin, in fairly large qualities. Such saponin can be transformed in the human body into hormones of the 17-keto steroids like progesterone, which in the presence of oestrogen act as a lactogogue.

It is an established fact that *Rauwolfia vomitoria* commonly called "Kakapenpen" is used as an antihypertensive and a tranquilizer. These effects are known to be due to the presence of the indole alkaloid reserpine. The point to note is that before the alkaloid was isolated and tested for activity, *Rauwolfia vomitoria* and its extracts were used by our traditional healers in certain neuropsychiatic disorders and in the management of essential hypertension.

Picralima nitida is another alkaloid containing plant used locally as an antimalarial and to relieve pain. Although no antimalaria compound has been found to occur in the plant, the compound akuamine isolated from it has analgesic and anti-inflammatory properties.

There are at least 26 species of Cassia found growing in Ghana. Infusions of the dried leaves are used as purgatve and strong decoctions as abortifacient. Screening of a number of species of the plant showed that two species, *Cassia alata* and *Cassia podocarpa* contain the purgative principles, anthraquinone derivatives in similar quantities as are found in Senna, the official drug called *Cassia angustifolia* and *Cassia acutifolia* which have not been found to grow in Ghana.

One of the folk-lore uses of the stem bark of *Pachypodanthium staudtii* is in its use together with other ingredient for the treatment of local tumours. Phytochemical analysis of the plant showed that it contains the oxoaporphine alkaloid liriodenine which has been reported to possess cytotoxic activity. This may give credence to the supposition that the folk-lore medicinal use of *P. staudtii* as an antitumor could possibly be attributed to the presence of the alkaloid liriodenine.

The story of Cryptolepis (Nibima) in Ghana is fairly recent. In 1963 an International Seminar on *Cryptolepis sanguinolenta* family Periplocaceae was held in the University of Science and Technology, Kumasi, to assess the potentials of the plant as a medicine. The plant has a wide application in traditional medicine. It is used as anti-malarial, as an analgesic, for wound infections and venereal diseases. An aqueous extracts of *Cryptolepis sanguinolenta* has been shown to have marked antimicrobial effect on some urinary tract pathogens. The alkaloid cryptolepine has also been shown to have a broad spectrum of activity against both gram positive and gram negative organisms.

Research work initiated by the Faculty of Pharmacy has confirmed the anti-inflammatory activity of cryptolepine. Although no activity for cryptolpine against malarial parasites has been confirmed there is an indication that the total extract from the plant may have antimalarial activity. I believe that with the above illustrations, I have attempted to impress upon you that there is some evidence to support or justify the use of herbs in the treatment of diseases by traditional medicine. What then prevents us from learning more about them so that we can use our findings to augment orthodox medical practices?

Negative aspects

Admittedly there are some disadvantages and problems associated with his system of medicine which need to be mentioned. In my introductory remarks, I raised the issue of psychism and spiritualism and stated that I was not in a position to defend its role in traditional medicine. A number of traditional medical practitioners attribute the causes of diseases to supernatural factors and make very little or no attempt to differentiate between illness of the physical type and that of psychological origin. The traditional healer attributes certain unexplained uses of medicinal plants to magico-religious concepts. the application of these intangible aspects of traditional medicine is difficult to acknowledge, is open to accusation and discredits the practice.

Plant "cures" used in the treatment of diseases are often shrouded in secrecy. The result is that many plants of great medicinal value may be lost because people who know about them may have died without passing on their knowledge to succeeding generations.

Sometimes certain plants that are reputed to have potent cures have failed to pass modern scientific tests designed to verify such claims. For example the Periwinkle, Vinca or *Catharanthus roseus* is claimed to be a potent antidiabetic and is still widely used in traditional medicine. When scientifically investigated, extracts of the plant failed to reduce fasting blood sugar levels. Such contradictions between folkloric and scientific verification tend to hamper the use of herbs in scientific medicine.

One other negative aspect of traditional medicine is the apparent difficulty in diagnosis. The fact that the Ghanaian traditional healer has no knowledge of human physiology, anatomy and biochemistry coupled with his lack of appropriate diagnostic tools raises doubts about his ability to diagnose diseases correctly. Symptomatic diagnosis of these diseases have been learnt through their practice over a long period of time. Sometimes, such diagnosis are successful when the diseases have progressed to their most serious stages. For example in the diagnosis of tuberculosis it is only when there is blood in the phlegm discharge

associated with persistent cough that it is suspected.

Posology in traditional medicine is unsatisfactory. Most often there are no standard weights and measures. The traditional healer uses various containers like calabashes and bowls of different sizes and rubber pumps for enemas with no standard volumes. Most of the containers are filled to brim without reference to their sizes or the concentration of the medicament. Some traditional societies believe that the efficacy of a preparation is measured in terms of the quantity taken and the frequency of administration. Patients are therefore likely to take excessive doses or at times doses that are too low for any effective cure.

Another often mentioned negative aspect is the healer's ignorance as to the limit of his real capabilities. Many hospitals complain of receiving nearly always too late, patients with diseases which are curable by modern scientific medicine but have been delayed longer than desirable in the hands of traditional healers. These factors tend to limit the impact of traditional medicine and unfortunately, adversaries dwell so heavily on this darker side of the practice and refuse to give it any credit at all.

Future

Despite these drawbacks and the great strides that orthodox medicine has made, traditional medicine has played and continues to play a great role in the health needs of our rural people. Hospitals or orthodox treatment centres are located in the urban areas making them inaccessible to the vast majority of the population estimated between 70 and 80% and who live in the rural areas. These people have had to resort to alternative centres for their medical care. It therefore becomes imperative that the systems of traditional medicines be standardised and its use encouraged so that it can continue to serve the health needs of our people.

In developing traditional medicine we must set ourselves very clear objectives. These should include:

i. To promote its use in the health care delivery systems thereby providing additional or alternative source of medical services.

ii. To provide additional source of drugs and to reduce our dependence on imported drugs.

iii. To encourage its integration. with orthodox medicine.

The first step to adopt to advance the goals of these objectives is the collection of information. Reputable traditional healers must be identified and information on medicinal plants of proven efficacy be compiled whether or not scientific proof for their use has been established.

Information so collected must then be subjected to some experimental research. Such investigations must be conducted in well established centres, ideally those where traditional and orthodox medicine are practised together like the centre for Research into Plant Medicine at Mampong Akwapim. The end result of such research work is to have proven the claimed efficacy or otherwise, of herbal drugs and make the results available to all members of the health team.

Toxicological studies must be carried out before recommending them for use in our health care delivery systems. The herbal drug, either in the crude form or partially purified form can then be formulated into suitable dosage forms. The formulation studies should as far as possible have the objective of imitating traditional mode of preparation and utilization.

The isolation of the active constituents of the plant, the determination of their physico-chemical properties and pharmacological activities and attempt at synthesis must not be of immediate priority. Such an approach is expensive, difficult and time consuming. For example, it is estimated that it takes about 5 years to put a drug on the market after it has been established to have biological activity and that it costs no less than $3 million U.S. dollars, an equivalent of 180 million cedis to develop a new product. Obviously our human, fiscal and other material resources cannot support such ventures in the foreseeable future.

Summary of Recommendations

I conclude with the following recommendations:

1 That there must be a massive public education on the positive aspects of traditional medicine.

2 That physicians must open up and evaluate critically and without prejudice, the potentials of herbal medicine.

3 That renowned and effective traditional healers must be accorded due recognition, registered and encouraged to set up traditional hospitals.

4 That schools should be set up to train traditional doctors or to improve upon and upgrade their mode of practice.

5 Laws should be formulated and enacted to control the sale of herbs and to regulate the practice of traditional medicine.

6 Herbal preparations with proven efficacy should be standardised and their quality control and tocicological studies made and formulated into suitable dosage forms.

7 That such preparations should be introduced into our hospitals and community pharmacies.

8 That a herbal pharmacopoeia should be developed.

9 That the conventional or scientific method of analysis of medicinal plants must be a long term project.

10 That medicinal plant farms must be established to cultivate herbs with proven medicinal properties.

11 That the Centre for Research into Plant Medicine at Mampong-Akwapim should be given every encouragement by the Government, private organisations and individuals and its activities must be expanded to cover most parts of the country by setting up smaller centres in selected parts of the country.

Some authoritative individuals and national and international organisations have raised similar recommendations.

In 1974, Dr Mahler, then Director General of the World Health Organisation speaking at the World.

Assembly of WHO stated "since it is highly impossible that underdeveloped countries will possess in the near future sufficient number of licenced and trained medical personnel, it will be essential to continue with certain solutions which up to now are regarded as unorthodox; for example the training and judicious use of an increasing number of medical auxilliaries, healers, traditional midwives who are perhaps spurned by certain leaders. But if these solutions seem appropriate, the organisation must take a stand so that their adoption will serve the interest of the people and will constitute in the long-run a sound and not a tactic to which we resign ourselves for lack of something better."

The Executive Board of WHO at its meeting on Traditional Medicine on 16th January, 1979 in Geneva resolved to request the Director-General and the regional directors to continue to develop the traditional medicine programme of WHO including guidelines for the use of valuable health care practices as and when appropriate to allocate necessary financial and other resources to this programme and to cooperate with Member States in this field.

The Association of Medical Schools in Africa at its 13th Annual Meeting held in Addis-Ababa in April 1979 resolved among other things "that traditional medicine should seek to promote its use in health care delivery by examining practices and medical preparations, therapeutic and diagnostic properties and virtues; and also to bridge the communication gap between orthodox and traditional medical practitioners in order to improve health care delivery."

The United Nations Industrial Development Organisation (UNIDO) in its Monograph on Appropriate Industrial Technology (10); 2, 1980 recommended the improvement and strengthening of the scientific base for development and production of traditional medicines and suggested that together with modern drug technology the production of drugs used in traditional and local systems of medicines should be encouraged and integrated with the general programme of medical care. UNIDO further proposed the need for standardisation and the encouragement of the cultivation of medicinal plants and where possible facilities for their processing be established near the farms.

Conclusion

The vast majority of our people estimated at 70-80% most of whom live in the rural areas do not have any access at all to modern medical care or have inadequate facilities. In addition most of our people in the rural areas can hardly afford the high cost of modern medical care. These people rely largely on the services of traditional healers. The important role that the traditional healer plays in our communities can therefore not be over-emphasised. We have said a lot about this problem. What we need now is ACTION.

The move by the Government to set up the Centre for Research into Plant Medicine at Mampong Akwapim was a positive one. If only we can continue to carry on in that direction without waiting for scientific endorsement, we will all be witnesses to the solemn blessing of a happy, prosperous and lasting marriage between orthodox and traditional medicine to the advantage of us all. Without such an integration, the call, our hope and our wish for HEALTH FOR ALL BY THE YEAR 2000 on this side of the globe will be a mere dream.

oOo

FEELING HOT

A young couple had parked their car in a quiet, dark lane and when amotor-cycle cop bounced upon them, they knew nothing about it until the cop's touch lit up the inside of the car. "Okay, "said the cop, eyeing the couple accusingly. "What are you doing here? The young man shrugged dansaid: "Guess we ain't doin' nothing, officer". The cop looked at the girl and then turned to the man and said: "yeah? In that case, you come out here and hold the touch".

PLATFORM TALKS

The candidate declared: "what Iwant is housing reform, land reform, school reform, law reform . . ." A woman shouted out: "And what about chloroform?

THE MORE THE MERRIER

She saw a gadget for the kitchen the other day. On the card it said that it would cut her housework in half. She bought two.

THE PHARMACEUTICAL SOCIETY OF GHANA

CLINICAL PHARMACY WORKSHOP

ON

"ASTHMA" AND "HYPERTENSION"

Under the Continuing Education Programme of the Society, the above One-week Residential Clinical Pharmacy Workshop will be organised for Practising Pharmacists at the Faculty of Pharmacy, UST, Kumasi from July 26 - August 1, 1987.

Resource-persons who will handle the Workshop include:-

1) Hewitt W. Matthews, Associate Dean, Southern School of Pharmacy, Mercer University, USA.
2) Dr Herman Lazarus, Past President, American Society of Hospital Pharmacists.
3) Dr J.W. Acheampong, School of Medical Sciences, UST, Kumasi.
4) Dr Wood, Komfo Anokye Teaching Hospital.
5) Dr A. R. Neequaye, Korle-Bu Teaching Hospital
6) Mrs Esther Osei, Ghana Police Hospital
7) Dr A. C. Sackeyfio, Faculty of Pharmacy, UST

Participation Fee: C5000.00 per person including meals for the week but accommodation will be extra.

Interested Pharmacists should submit their names together with the participation fee to:

THE HON. GENERAL SECRETARY
National Headquarters Accra.

or Prof. R. ANSA-ASAMOAH
Workshop Co-ordinator
c/o Faculty of Pharmacy, UST, Kumasi.

NOT LATER THAN 15TH JULY, 1987.

Printed by Nsamankow Press, Accra-North.