Introduction

Medicinal Plants: Policies and Priorities

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Traditional medicine has been with the World Health Organization (WHO) for the last twelve years or so and for the rest of the world for the last several thousand years of recorded history. One might say that we are new at the game.

Traditional medicine is widespread throughout the world. It comprises those practices based on beliefs that were in existence, often for hundreds of years, before the development and spread of modern scientific medicine and which are still in use today. As its name implies, it is part of the tradition of each country and employs practices that have been handed down from generation to generation. Its acceptance by a population is largely conditioned by cultural factors and much of traditional medicine, therefore, may not be easily transferable from one culture to another. In dealing with traditional medicine, WHO aims at exploiting those aspects of it that provide safe and effective remedies for use in primary health care.

Acknowledging its potential value for the expansion of health services, the World Health Assembly has passed a number of resolutions. In 1976, it drew attention to the manpower reserve constituted by traditional practitioners (resolution WHA29.72). In 1977, it urged countries to utilize their traditional systems of medicine (resolution WHA30.49). In 1978, it called for a comprehensive approach to the subject of medicinal plants (resolution WHA 331.33.) This approach was to include:

- An inventory and therapeutic classification, periodically updated, of medicinal plants used in different countries;
- Scientific criteria and methods for assessing the safety of medicinal plant products and their efficacy in the treatment of specific conditions and diseases;
- International standards and specifications for identity, purity, strength and manufacturing practices;
- Methods for safe and effective use of medicinal plant products by

various levels of health worker;
- Dissemination of such information among Member States; and
- Designation of research and training centres for the study of medicinal plants.

In May 1987, the Fortieth World Health Assembly (resolution WHA 40.33) reaffirmed the main points of the earlier resolutions and the related recommendations made, in 1979, by the Alma-Ata Conference. This resolution provides a mandate for future action in this field and is summarized below. Member States were urged *inter alia*:

- To initiate comprehensive programmes for the identification, evaluation, preparation, cultivation and conservation of medicinal plants used in traditional medicine;
- To ensure quality control of drugs derived from traditional plant remedies by using modern techniques and applying suitable standards and good manufacturing practices.

Thus, the importance of conservation is recognized by WHO and its Member States and is considered to be an essential feature of national programmes on traditional medicine.

Several years ago the over-exploitation of wild-growing *Rauvolfia serpentina* in India for export exhausted the supply to a point where the Indian government placed an embargo on the export of this plant, which remains in place today. This has created a major problem in the United States of America, since the United States Pharmacopoeia requires that *Rauvolfia serpentina* be of Indian origin when used in a crude form. Another example of a plant that has been over-exploited in India for export to other Asian countries is *Coptis teeta*, which is now considered as endangered in India.

A general idea of WHO's priorities in this field for the next few years may be obtained from the medium-term programme for traditional medicine (WHO, 1987). I shall not attempt to describe all the activities listed but shall concentrate on those items that are directly relevant to the subject of this book.

In most developing countries, where coverage by health services is limited, it is to the traditional practitioner or to folk medicine that the majority of the population turns in sickness and the treatment is, in large part, based on the use of medicinal plants. Early in this century, the greater part of medical therapy in the industrialized countries was dependent on medicinal plants but, with the growth of the pharmaceutical industry, their use fell out of favour. Even so, 25% of all prescriptions

dispensed from community pharmacies from 1959 to 1980 in the U.S.A. contained plant extracts or active principles prepared from higher plants (Farnsworth, 1984).

According to a survey by the International Trade Centre (1982), trade in medicinal plants and their derivatives in pharmacy has declined in many industrialized countries, owing to the volume of competitive synthetic products currently marketed. Now the pendulum is swinging back and the value of medicinal plants in treatment is receiving increasing attention worldwide.

Overall, the trade in botanicals has increased, through their use in the health food and cosmetic industries. Imports, however, represent only a minute percentage of the value of internal trade in medicinal plants. For example, in the United States, imports in 1980 were valued at US$44.6 million compared to an internal trade in medicinals and botanicals in 1981 estimated at US$3.9 billion.

In a recent report (WHO, 1986), the production of traditional plant remedies in China was valued at US$571 million and the country-wide sales of crude plant drugs at US$1.4 billion annually (Li Chaojin, 1987).

It is evident that, even if imports by industrialized countries are declining (which is doubtful), the potential for internal trade in medicinal plants and their derivatives in many developing countries is tremendous.

The attention paid by health authorities and administrations to the use of medicinal plants has increased considerably, although for different reasons. In developing countries, this has largely resulted from a decision to take traditional forms of medicine more seriously and to explore the possibility of utilizing them in primary health care. In other countries, health authorities have been compelled to exercise closer surveillance because of the growth in the popular use of herbs and plants in self-treatment and in the health food industry, developments not necessarily to their liking.

It is often claimed and is widely believed that remedies of natural origin are harmless and carry no risk to the consumer. We should keep in mind that nothing could be further from the truth, particularly where there is a risk of toxic plants being used by mistake or where "herbal preparations" are marketed with the addition of undeclared potent synthetic substances.

That many traditional remedies are of therapeutic value is no longer open to doubt. However, the use of manufactured products should be governed by the same standards of safety and efficacy as are required for modern pharmaceutical products. Proof of safety should take precedence over establishing efficacy, and accuracy in labelling the constituents of medicinal plant remedies is critical for safety evaluation

and drug control.

In developed countries, a knowledge of medicinal plants is no longer required in the training of health staff; pharmacognosy, the study of drugs of plant or animal origin, has virtually disappeared from the curriculum and the subject is passed over in silence. By contrast, in recent years, there has been a great surge of public interest in the use of herbs and plants, a subject which has received extensive coverage in the press and lay publications, much of it uncritical and unverified and some even dangerous.

Ensuring safety, therefore, in the use of medicinal plants and remedies derived from them requires not only measures for control but also a substantial effort in public information and professional education and in making readily available up-to-date and authoritative data on their beneficial properties and possible harmful effects.

Where safe and simple medicinal plant remedies have been employed traditionally for a long time in the treatment of minor self-limiting conditions, establishing efficacy may not be so important, provided their composition is known.

However, where a medicinal plant remedy, traditional or otherwise, is to be marketed for the treatment of more serious conditions, the manufacturer should demonstrate both safety and efficacy before the product is licensed. A pre-market review is indispensable if the dangers of exaggerated claims and ineffective or unduly toxic medicaments are to be avoided.

With this as an introduction, let me describe some of the activities undertaken by WHO.

A WHO/DANIDA Inter-Regional Workshop on Appropriate Methodology for Selection and Use of Traditional Remedies in National Primary Health Care Programmes was held in Bangkok, Thailand, in November/December 1985, with participants from Indonesia, Malaysia, Nepal, the Philippines and Thailand. The Workshop was the first in a series intended to address problems of safety and efficacy of traditional remedies, including related issues of standards, stability and dosage formulation. The overall objective of this first Workshop was for participants to acquire the methodology needed for the introduction and utilization of natural substances in health services.

Subsequently, a visit was made to three countries (Indonesia, Nepal and Thailand) to assess the impact of the course in improving methodology and the application of newly acquired knowledge to the use of medicinal plants in primary health care. All three countries have conducted satellite workshops for their nationals and have proceeded to select a number of single plant remedies for use in their health services.

Another workshop, to follow up the Bangkok meeting, is planned and will address some of the problems identified by participants. WHO is now planning, with the support of DANIDA, two similar workshops for countries of East, Central and Southern Africa and for the West African countries.

The use of medicinal plants in traditional medicine finds its natural expansion and further development in primary health care. It is at this level that the transition from traditional practice to medical care can most easily be made.

In China, traditional medicine is an integral part of the formal health system and is utilized in about 40% of cases at the primary care level. Supplies are assured by the state-owned Chinese Crude Drugs Company which has branches in all provinces, autonomous regions, municipalities and counties. Formerly, crude drugs were mostly collected in the wild state but, with more brought under cultivation, natural sources are becoming depleted. Special encouragement has, therefore, been given for the cultivation of medicinal plants. Agricultural departments at all levels take part in formulating policy and establishing plantations which now cover some 330,000 hectares (Li Chaojin, 1986).

It was with a view to sharing experience in this area that, in 1985, WHO sponsored an Inter-regional Seminar on the Role of Traditional Medicine in Primary Health Care in China (WHO, 1986). It gave senior administrators, responsible for national health policy in 19 countries, an opportunity of studying the utilization of traditional medicine in primary health care and of examining the possibility of adopting comparable approaches in their own health services. The response to the Seminar was prompt, several of the countries represented (Bangladesh, India, Nepal, Philippines, Sri Lanka and Sudan) taking action to make better use of their traditional systems of medicine.

In India, the Ministry of Health and Family Welfare took the valuable step of holding, in 1986, four regional seminars on medicinal plants, their collection, cultivation, exploitation, conservation and rational use. Copies of these reports may be obtained from the Ministry of Health and Family Welfare, New Delhi-110011, India. Participants were representative of the various disciplines, occupations and institutions concerned. This important and interesting initiative could very well be taken by other countries. It would create greater awareness of the extent of their wealth of medicinal plants and would stimulate the different departments involved to work together.

At the Fourth International Conference of Drug Regulatory Authorities, co-sponsored by the Ministry of Health and Welfare of Japan and WHO and held in Tokyo in July 1986, a workshop was held on traditional

herbal medicines. It was acknowledged that these medicines play an important part in health care in many countries, developed as well as developing. It was noted that truly traditional practices are more amenable to influence through education and training than to statutory control. The workshop also concentrated on the exploitation of traditional medicine through over-the-counter sales of labelled products on a commercial basis and addressed the need for legislation, quality, standards, and information.

Countries wishing to make full use of their heritage of traditional medicine and the wealth of medicinal plants which most of them possess, have a special interest in sponsoring ethno-medical studies, bringing together botanists, clinicians, pharmacologists and others for the purpose and in making adequate resources available.

A first step would be to review on a national basis the utilization of medicinal plants in general and of medicaments derived from them. Such an examination might reveal opportunities for making greater use of safe and effective galenical preparations which might stimulate local cultivation and production and at the same time permit economies to be made, saving scarce foreign currency.

In any event, experience in the preparation and utilization of galenicals is a necessary prerequisite for clinical evaluation of traditional remedies, when these have been identified as meriting further study. Such evaluation may present many problems, particularly with compound medicines containing several ingredients.

An important feature of traditional Chinese therapy is the preference of practitioners for compound prescriptions over single substances, it being held that some constituents are effective only in the presence of others. This renders assessment of efficacy and, eventually, identification of active principles much more difficult than for simple preparations. The whole subject of the rationale for compound prescriptions of medicinal plants offers a vast field for research. The addition of modern synthetic drugs to traditional remedies complicates the matter of evaluation even further.

National inventories of medicinal plants are essential if sound programmes for their rational use and exploitation are to be developed. Such inventories, still to be made in many countries, need to describe the geographic and climatic distribution of medicinal plants, their source (collection from the wild, cultivation in *in situ* or *ex situ* in botanic gardens, commercial plantations) and an indication of their relative abundance or scarcity.

For each plant there would be an account of its utilization (e.g. folk medicine, traditional healers, pharmaceutical or food industries) and its

place in commerce (e.g. local use, internal trade, export). There would also be a description of its constituents, pharmacological properties, and therapeutic indications.

Logically, the investigation, utilization and exploitation of medicinal plants by a country should also include measures for their conservation. This is the subject of our Consultation and it is expected that a number of national programmes for the conservation of medicinal plants will result from this initiative. Conservation and inventories of medicinal plants go hand in hand, the latter being essential for the identification of endangered species, for setting priorities and for monitoring the situation.

Most developing countries have an abundance of medicinal plants which are used in their traditional forms of medicine. The planning of pharmacological and clinical studies to assess their safety and therapeutic efficacy, the decision to cultivate them commercially, and the development of policies for their conservation all require some form of ranking or assessment of their relative values and importance. There is, however, no simple way of making such comparisons; thus:

- Certain plants may be common but are widely and safely used in folk medicine which, presumably, makes them important;
- Other plants may be used in treating serious conditions and are important because of their therapeutic value; while
- Still others may be of great economic importance as items of internal trade or export, and so on.

Furthermore, within the same geographical area, a medicinal plant may be considered to have very important properties by some communities but not by others.

Obviously, any conclusion about the relative importance of a particular medicinal plant must depend on the criteria applied and the context in which it is considered.

It is necessary, therefore, to take a comprehensive approach and to bring together the main disciplines and interests concerned – health, agriculture, industry, trade, universities – under some form of coordinating mechanism. Such a body would assess needs and priorities, formulate national policy, help to mobilize resources, and ensure the orderly development of work and research in this field.

Medicinal plants, their study, evaluation, utilization and conservation, form an important part of the proposed medium-term programme in traditional medicine for WHO and Member States over the next few years (WHO, 1987).

Situation analyses in countries will include inventories of medicinal plants, assessment of the safety and effectiveness of traditional remedies, and comparisons of the relative advantages of western and traditional methods in the treatment of specific conditions.

Countries will lay special emphasis on making safety a foremost consideration, not only through the training of professional and technical staff and the application of standards, specifications and good manufacturing practices but also by seeing that the public is kept well-informed on the subject.

The activities described will be mostly implemented by countries themselves, with relatively little need for external financing. WHO's involvement will have to be largely catalytic in nature and this is as it should be. Fortunately, the Traditional Medicine Programme has many linkages—with other programmes in WHO, with many international agen- cies and organizations, and with numerous government and university departments.

The challenge will be to find ways of working together. The 1987 World Health Assembly resolution (WHA40.33) serves to remind all concerned that much remains to be done. Strong official support in their own countries is probably what workers in this field need most.

Of almost equal importance is ready access to technical expertise at home and abroad, the ability to keep in touch with developments in other countries, and the opportunity to exchange ideas and experience. This traditional role of international organizations and universities is one that has considerable potential for expansion, at least so far as medicinal plants are concerned.

Collaboration with United Nations agencies, multinational and non-governmental organizations active in fields related to traditional medicine has been increasing recently and will continue. Linkages with and between WHO Collaborating Centres for Traditional Medicine, with their wider responsibilities, will form an important part of the programme.

I have tried to give you an idea of WHO's policies and activities in relation to medicinal plants and their rational and sustainable utilization. Significant progress over the next few years will depend on the imagination and determination which can be brought to bear on the subject.

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