

Improving the Perspectives of Safe and Effective Use of herbs in Health Care

ABDULLAHI S. ELMI

Somali National University-Mogadishu

Introduction

The use of plants for the cure of human and animal diseases goes back to the dawn of mankind. For thousands of years, in all parts of the world man has turned to the plants in order to get relief for his physical and mental discomforts.

The last 150 years have recorded many successes in the development of important drugs and remedies from plants. In today's world therapeutic armamentarium plant products are well represented. N.R. Farnsworth points out that one quarter of the total prescription drugs in industrialized countries contain one or more components derived from plants.

Considering the extensive research which is in course all over the world, this situation is likely to persist or the ratio of drugs obtained from plants may even increase in world pharmacopoeias.

These facts should not however lead one to believe that research into medical plants is always and everywhere a success story. The rose of medicinal plants research is quite thorny; these thorns are unfortunately abundant in developing countries.

In fact, despite the good potential offered by herbs, development of medical plants especially in poor countries has known many setbacks.

The majority of developing countries have enthusiastically engaged part of their human and material resources in studies oriented towards scientific evaluation and development of drugs used in their traditional medicine. The reason for embarking in this kind of research is mainly dictated by the need for cheap and easily available medicines. A certain national pride in utilizing home remedies also accounts for part of the logic behind the interest in this research.

One important factor is that expectations for the outcome of these studies varies between developing and industrialized countries.

People in economically developed countries enjoy a proper health care system. All needed drugs are readily accessible to nearly all members of the community. For many people of these countries, plant derived drugs are associated with good old days; nostalgia for grandmother's remedies are an inducement for many to try these drugs. Some people are convinced that natural products have great efficacy while being devoid of toxic effects. Pharmaceutical companies press on

these expectations and flood the market with many drugs the usefulness of which is quite dubious.

In developing countries only a minority has good access to suitable health care facilities. People still have faith and greatly depend on the plant products which for ages had been utilized in traditional medicine. For a sizeable part of the people, medicinal plants are the only drugs which are available for them. Large amounts of these are used daily despite the fact that the therapeutic usefulness of most of these remedies has not been scientifically evaluated.

The great expectation of health authorities in these countries is that the credits of these be examined and a better use accomplished in the easiest and less time consuming way.

Every research of this type which is undertaken in a developing country must take these factors into due consideration. The research approach chosen by national institutions should be designed so as to accomplish these goals.

Experience in Developing Countries

There is no doubt that plants are a considerable source of valuable drugs. The numerous and essential medicines of plant origin used by physicians is a good demonstration for that. Moreover, it is important to mention that only a small percentage of plant species of the world flora has so far been investigated.

Attracted by the wave of the successful discoveries of some therapeutically important compounds, many scientists and research institutions especially in developing countries decided to jump on the boat of medicinal plants research.

Unfortunately, the extensive research carried out in recent years has not returned the expected results.

The classical approach used for the evaluation of traditional remedies is probably an important reason why the results have been so disappointing.

In this approach, plants which are normally used by humans in the fresh state are collected, dried, stored for some time, subjected to different types of extractions and tested on laboratory animals for evaluating potential activities. At the end of the experimental phase, the drug passes to clinical evaluation. This model has been introduced by pharmaceutical companies for the testing of pure chemical substances. It is now largely recognized that this approach is inappropriate. While it has resulted in the development of new drugs, it has not been very successful when applied to plant substances.

What is worse is that it doesn't absolutely match the requirements of developing countries. This approach neglects the most important and immediate objectives of poor countries: the safe utilization of these plants in primary health care.

There are several problems inherent with this approach. First of all many plants may be active in the fresh form and lose such activity during the drying and storage process. Therefore biological as well as chemical studies should be carried out on fresh plants. Secondly, the classical approach does not take into account that several plants may be acting together. In traditional medicine it is very common that several plants be administered together. There must be some important reason for doing that. There are evidences that often combinations of plants result in increased efficacy and decreased toxicity than single plants. In these combinations, it happens that one plant potentiates the activity of a second one and that

a third plant counters the toxicity of one of the plants and so on. In traditional medicine many common substances are used as catalytic or potentiating agents. All these factors are neglected by the classical model.

Determination of total activity as prescribed by folkore medicine is not possible with this approach.

Also in the case of a single plant it is not true that the activity will always increase with further fractionations with one fraction being more active. Sometimes the fractionation results in decrease of activity with respect to total activity (e.g. antifertility activity of *Butea monosperma*).

In this approach, undue importance is given to isolation of pure active compounds from medicinal plants. While isolation and identification of single active compounds is interesting for studies of structure-activity relationships and may be stimulating for the scientist, it will not contribute to any significant extent to the solution of health problems of developing countries. In fact many countries in Africa and Asia have shifted to other models.

Past Experience in Somalia

When the Programme of research into plants used in Traditional Medicine started in 1978, it was strongly based on the classical approach which was then the prevailing model. The phases of the project were designed according to this approach.

Considering the previous experience of researchers in the field of drug research, it was almost unavoidable that the study would start in this way. Researchers gradually became aware of the lack of consistency of this way of tackling the problem.

In subsequent years, gradually and through discussions research activities were to a certain extent made more respondent to the principles of traditional medicine and to improved objectives. However the introduced revisions are still unsatisfactory.

In absolute terms the research has produced a lot of results. But unfortunately most of these results don't have the practical usefulness that the country needs.

At this stage it is essential that strong and positive changes be introduced.

Proposed Approach

In developing countries, traditional medicine has still greater prevalence and better accessibility than modern medicine. There is no doubt that this will still remain so for many years to come.

The immediate, useful and most important contribution of scientists in this field is how to make this medicine safer and confirm or disprove the efficacy of the preparations which it makes use of. A research which is oriented towards these goals could be carried out in an easier, quicker and cheaper way than the classical approach.

One important factor is that total extract or combinations of plants be administered in exactly the same way as it is used in traditional medicine. Studies should be carried out on fresh plants as very often traditional medical practitioners do.

The proposed approach is as follows:

- a) Toxicological study in two species of animal for acute and subacute toxicity;
- b) Experimental evaluation of the activity for which the plant or combination of plants is used;
- c) Clinical evaluation for efficacy in humans.

Before starting clinical evaluation of any plant, the results of all the pharmacological and toxicological investigations should be presented to an ethical committee.

The advantage of this model is that the costly, sophisticated and time consuming chemical studies of separations, subsequent fractionations and structure elucidation is avoided. These steps in fact are not necessary for the needed progress towards a better use of medicinal plants in health care. This approach takes into account the concepts of traditional and folklore medicine. No one can expect that traditional medical practitioners make use of pure extracts or fractions of the plants they use.

With the proposed approach, the already widely used herbs are evaluated in an easier, quicker and less expensive way and the community will be the first to benefit from it. This is also the best system to accelerate the regulation of healers' activity in Somalia.

In short the best strategy is to translate folklore into scientific application.

References

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