Medicinal plants in skin diseases: a survey among ayurvedic practitioners in Kalutara, Sri Lanka

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Abstract

Background Sri Lanka has had a well developed ayurvedic system of medicine before the Western allopathic medical practices became widely available. Even now a large segment of the population seek ayurvedic treatment particularly in rural areas. Some of the plants used by the ayurvedic practitioners for skin diseases may have medicinal properties.

Methods Registered ayurvedic practitioners of Kalutara District were sent a postal questionnaire to name the ten most commonly used medicinal plants prescribed for skin diseases, part/s of plants used and the diseases they are used for. The botanical names corresponding to the Sinhala names were checked from reference books on medicinal plants in Sri Lanka.

Results Thirty four of 109 registered ayurvedic practitioners had replied. All together they had named 165 plants used in skin diseases topically. The most commonly used plants are *Azadirachta indica* (margosa) 88.2%, *Curcuma longa* (termeric) 67.6%, *Cassia alata* (winged senna) 47.1%, *Sesamum indica* (sesame) 47.1%, *Herpestis monnieria* 38.2%, *Mimosa pudica* (Sensitive plant) 38.2%, *Tamarindus indica* (tamarind) 35.3%, *Cocos nucifera* (cocount) 29.4%, *Memordica charantia* 23.5%, *Tinospora cordifolia* 23.5% and *Cassia tora* (fetid cassia) 23.5%. Approximately 50% of responders prescribed plant leaf as the most effective part of the plant as opposed to root, bark, flowers, juice, rhizomes etc. There was some uniformity in the use of various plants used in many diseases. However, lack of uniform terminology and difficulty in translating disease names/symptoms mentioned by the responders directly to scientific medical terms prevented further analysis of this aspect.

Conclusions Many plants used by ayurvedic practitioners in Sri Lanka are used in various parts of the world as herbal medicines. Several of these plants have been found to have medicinal properties by scientific experiments by others. It is important to record and preserve these plant resources, as valuable drugs may be extracted from some of these plants. As much as investigating possible benefits of plant products, the side effects of the herbal medicines too should be studied.

Introduction

From the earliest times in the history, man had to distinguish between those plants which are poisonous and those which are not. Over millennia of years man has gradually developed a knowledge of naturally occurring plants which have medicinal properties. In the recent past, useful drugs have been extracted of these plant products. Well known examples include reserpine from *Rauwolfia serpentina*, digoxin from fox glove, quinine from cinchona and atropine from *Atropa balladonna*.

Skin diseases are no exception, material from a large number of plants have been used in the treatment of various skin diseases for thousands of years. Examples include coconut oil compound ointment in psoriasis, castor oil from *Ricinus communis* used as an ingredient in many skin preparations, pyrethrums from *Chrysanthemum cinerariaefolium* used as a parasitocide and plant derived turpentine in cutaneous myiasis[1]. As in

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the case of extracting reserpine from *Rauwolfia serpentina* it may take a long period of time from the observation of a 'beneficial effect' to the actual purification and the commercial availability of a drug[2]. The recent report by the World Bank titled 'Medicinal plants – an expanding role in the development' too emphasizes the value and the potential of medicinal plants in medicine[2].

Ayurvedic medical practice has flourished in Sri Lanka for thousands of years before the western medical practice became widespread[3-9]. Even at present, at primary care level a large segment of the population seek ayurvedic treatment. In ayurvedic practice, which has its origins in India, many parts of plants are used as medicines.

Sri Lanka has a vast resource of plant species including numerous endemic plants. Recording the medicinal plants used in Sri Lanka is important not only for the present but also for the future.

Aim

To identify the most commonly, topically used plants for skin diseases by the Ayurvedic practitioners in the Kalutara District.

Materials and methods

The list of all registered ayurvedic practitioners in the Kalutara district was obtained from the relevant authorities and a pre tested, structured questionnaire in Sinhala (vernacular language) was mailed with a covering letter, explaining the purpose of the study. They were requested to send the completed form in the stamped, addressed envelope provided within a specified period. In the questionnaire, they were asked to list the most commonly used plants for skin diseases with names of disease, part or parts used, how it is used and how frequently they were used by each practitioner in the last three months. This survey specified to list only the topically used plant material in skin diseases and not material taken orally.

The botanical and English names of the plants mentioned were clarified from reference books[5,6].

Results

Of the 109 ayurvedic practitioners questionnaires were sent, 34 replied (31.2%). All together they had mentioned of 165 plant species used topically for skin diseases. Table 1 shows the most commonly used plants with their Sinhala, English and botanical names. Interestingly, many common plants that one comes across in Sri Lanka in home gardens and shrubs too were mentioned as having medicinal properties. *Azadirachta indica* (Margosa) topped the list with 88.2% responders mentioning that they use it in some form.

Various parts of the plants were used in preparations including the leaves (49.8%), seeds (8.0%), rhizomes (7.6%), barks (6.6%), juice e.g. lime (4.1%), oil (3.3%), trunks (2.9%), fruits (2.7%), roots (2.7%), flower (1.6%) latex (0.6%). The specific part of the plant used was not mentioned in 4.1% and in 6% it was stated that all parts of the plant are used. In a few instances ash of the burned plant leaf was recommended. Most practitioners recommended use of several plant products mixed together as 'pastes'. Several practitioners had mentioned in their comments, the value of a comprehensive approach of treating the mind, body and the skin together rather than concentrating on the skin alone in a skin condition.

Although there was general agreement on the diseases for which these products were recommended in most cases, exact combinations and quantities used varied to a great extent among the practitioners.

Discussion

The quest for new medicines from plant products has received worldwide interest in the recent past. The reasons for this renewed interest are; serious side effects of some of the available drugs, to develop new antimicrobials to counter resistance by micro organisms, to develop more effective drugs for cancer and HIV-AIDS and to minimize the cost. A recent World Bank technical report considers medicinal plants as 'a possible bridge between sustainable economic development, affordable health care and conservation of biodiversity[2].

In this study, as an initial step of identifying most commonly used topical plant materials used in Sri Lanka by ayurvedic practitioners, the registered ayurvedic practitioners of the Kalutara district were targeted. Kalutara district has a population of nearly a million, most of them living in rural areas. In addition to the registered practitioners there are many non registered 'herbalists' as well. Non registered herbalists were not included in this postal questionnaire survey. The registered practitioners have either formally studied the subject of ayurveda medicine or have joined the profession as an 'accepted' family tradition of indigenous medical practice through years of apprenticeship.

It is well known that many formulae for medicinal preparations are handed down from generation to generation or are found only in the scripts of old ola leaf books treasured by the ayurvedic practitioners. Another consideration in this study was to avoid 'printed literature bias' by referring only to the published books on herbs used in Sri Lanka. Figure 1 shows an old ola leaf book (dating back several centuries), with inscripions on ayurvedic medical formulations (courtesy Ayurvedic Physician Linton Sugathadasa, Kalutara). In this survey, registered ayurvedic practitioners were selected with a view to obtaining more precise names of the plants used, rather than inquiring from a community sample directly. It was felt that information gathered from the people who are not familiar with names of plants would have been more unreliable.

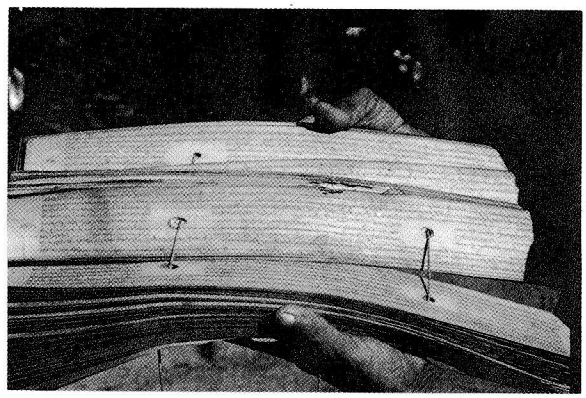

Figure 1. An ola leaf book dating back several centuries, with inscribed ayurvedic medicinal formulae (courtesy Ayurvedic Physician Linton Sugathadasa).

Table 1. Medicinal plants most commonly used for skin diseases by Ayurvedic Physicians of Kalutara District, Sri Lanka

Botanical name	*English name*	*Sinhala name*	*Number & %*
Azadirachta indica	Margosa/neem	kohomba	(30) 88.2%
Curcuma longa	termeric	kaha	(23) 67.6%
Cassia alata	winged senna	eththora	(16) 47.1%
Sesamum indica	sesame/gingelly	thala	(16) 47.1%
Herpestis monnieria	–	lunuwila	(13) 38.2%
Mimosa pudica	sensitive plant	nidikumba	(13) 38.2%
Tamarindus indica	tamarind	siyambala	(12) 35.3%
Cocos nucifera	coconut	pol	(10) 29.4%
Memordica charantia	bitter gourd	karawila	(9) 26.5%
Tinospora cordifolia	–	rasakinda	(8) 23.5%
Cassia tora	fetid cassia	pethithora	(8) 23.5%

A recent survey conducted in Sri Lanka among a sample of a rural community in the Western Province gives some data on herbal preparations used by them as home remedies[10]. Ten of the 11 'most commonly used medicinal plants' stated in our survey (Table 1) are included among the 25 plants mentioned as commonly used herbal medicines even in that study[10].

Many medicinal plants used in Sri Lanka are similar to those used in India[5-8], possibly indicating the Indian influence on Sri Lankan culture and traditions in addition to the climatic similarities. According to a recent ethnobotanical survey of medicinal flora used by the Caribs in Guatemala, *Cassia alata, Memordica charantia and Mimosa pudica* were among the most commonly used plants in that community as well[11]. *Cassia alata* (winged senna) is also reported to be used in Thailand, Malaysia and West Indies[9,12-14]. This shows that some of the tropical plants are used universally for their medicinal properties regardless of the geographic distance of the countries.

Sinhalese Materia Medica (Attygalle 1917) and Medicinal Plants Used in Ceylon (Jayaweera 1982) good accounts of medicinal plants used in Sri Lanka[5,6]. However the recommended uses are not backed by evidence of scientific study. We believe that at least some of these plants and combination preparations have medicinal properties and the scientific community should study these products for medicinal properties and try to identify any potentially useful drugs from these products. The drawbacks for such studies are the high cost, lack or sophisticated equipment and laboratory facilities to carry out necessary experiments, in developing countries. Another difficulty is that many indigenous remedies combine more than one plant in one preparation and concurrently administer oral and topical drugs making it difficult to assess the efficacy of individual plants.

There are many scientific reports from other countries on the efficacy of medicinal plants directly or indirectly relevant to dermatology. Some of the plants reported to be useful in medical literature include many plants mentioned by the Ayurvedic practitioners in our study. These include; *Cassia alata* (winged senna), *Allium sativum* (garlic), *Aloe vera*,*Curcuma longa* (Turmeric), *Azadirachta indica* (neem/margosa), *Sesamum indica* (sesame), *Cocos nucifera* (coconut), *Tinospora cordifolia* and *Memordica charantia* (bitter gourd)[12-19].

Leaves were the commonest part of plant (approximately 50%) used according to this survey. This implies that there is some agreement among the indigenous practitioners that most 'effective ingredients' are in the leaves. In nearly 90% times they were specific in recommending a certain part or parts of a plant rather than recommending the use of the whole plant (6%) and unspecified' parts (4.1%). In most cases, for a given disease they recommended more than one plant material. There was great individual variation in the combinations they used for one disease. In some instances the names they used to describe the diseases in Sinhala language could not be translated meaningfully to English as disease groups were categorized as one disease by the participants. Therefore in this study I have not attempted to subgroup the herbal preparations used for individual diseases. Furthermore the questionnaire was designed to identify the plant names rather than stating the disease and requesting the ayurvedic practitioners to write the treatment used. Lack of uniformity in terminology of diseases by the traditional medical practitioners is a difficulty in analyzing disease subgroups. For example, 'Kushta' (Sinhala) may mean fungal infection, bacterial infection or eczema[8,9].

Laboratory experiments elsewhere have shown that *Cassia alata*, coconut oil and garlic have antifungal properties[12,13,14,17]. If such findings are further confirmed by more studies; for ubiquitous fungal diseases such as *pityriasis versicolor* and dermatophytosis such remedies have a great potential at primary care level. We hope to study the efficacy of some of these preparations in vitro, especially in superficial fungal diseases in the next phase of the study.

Thailand has ventured into exploring the possibility of integrating indigenous medicines and the allopathic medicines in primary health care[20]. Considering the large numbers of people seeking traditional medical treatment in the developing countries, this may be a reasonable option

for other countries as well. A controlled clinical trial by some Thai workers has proven efficacy of *Cassia alata* in constipation[20]. No controlled trials are available on its dermatological uses.

A recent scientific study has proved that Chinese herbal medicines have beneficial effects in management of resistant eczema[21]. The issue of possible side effects of the herbal medicines too should be addressed. Some herbal medicines can cause serious side effects [22-25]. Many scientific papers are also available on the detrimental effects of some plant products on skin[26,27].

The various herbs in tropical gardens can be considered as the 'Nature's Medicine Cupboard'. We emphasize that some herbal products have medicinal properties and they should be used with due respect and care, as they also may have various side effects similar to allopathic medicinal drugs. A trend to be discouraged is the indiscriminate use of herbal preparations due to commercial interests without scientific studies, as happens in the cosmetics industry. For example, a small quantity of a herbal extract added into a cream may not have any effect attributable to the plant or it may cause a contact dermatitis.

Sri Lanka has a great biodiversitiy in its abundant medicinal flora. The information gathered regarding medicinal plants may be valuable in identifying new and more economical 'drugs' or remedies at least in the future. As scientific practitioners, though we should not have blind faith in herbal medicines for all the claimed benefits', the potential of medicinal plants should not be ignored. It should be explored further through scientific research.

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