

THE ROLE OF INDIGENOUS MEDICINE IN BIODIVERSITY AND SUSTAINABLE DEVELOPMENT

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The Indigenous Medical System commonly known as Ayurveda is the source of health maintenance and cure of disease for a large proportion of the population of this country. W.H.O. accounts that over 80% of the population in Asian and South Asian countries still resort to the time old indigenous systems of medicine. This system of medicine is mainly based on herbal preparations. Hence it is called herbal medicine. The use of plants forms, the basis of traditional systems of medicine all over the world.

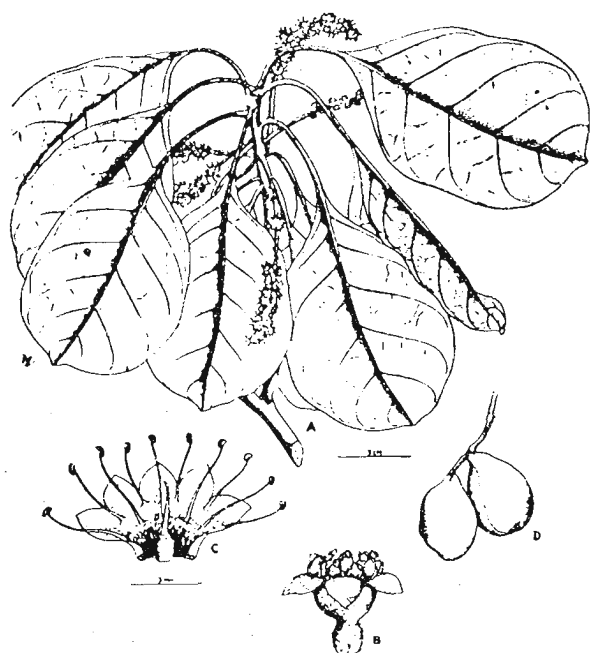
The development of systematic pharmacopoeias dates back as far as 3000 BC; even at that time the Chinese were having over 350 herbal remedies. In Sri Lanka there is no systematic cultivation of herbs except ginger and turmeric which are used more as condiments than medicine. All the other raw material for the medicines are collected from the wild.

There are over 10,000 Ayurvedic practitioners, scattered through out the country. The common practice of the physicians are that they prepare their own medicine, namely decoctions, herbal oils, herbal wines, herbal powders and pills. At the same time due to the growing demand, there is a fairly big market for these preparations. As a result there are over 70

private Ayurvedic manufacturing units in addition to the state owned Sri Lanka Ayurvedic Drug Corporation. Added to this, at all Ayurvedic hospitals, there are pharmacies to manufacture their own medicinal preparations. All this means that there is a great demand for the raw materials. This demand could be very much larger in the near future as there is a growing interest in the west for herbal preparations. There are over 2500 plants mentioned in the indigenous medical literature. Out of these about 250-300 plants and their by products are excessively used in day to day preparation. These preparations consists of herbal tea, decoction, herbal oils, powders, pills and herbal wines. Root, stem, bark, root bark, flower buds, nectar, leaves, tender leaves, ripe, unripe and dried fruits, seeds, gum, resins etc., are used in these preparations. Therefore there is a great need for systematic cultivation and collection of these plants and their byproducts. In view of the above factors the Bandaranayake Memorial Ayurvedic Research Institute has taken some initial steps towards systematic growing of herbs and research.

Growing and collecting of medicinal plants can be made into a very successful income generating project with additional benefits such as creating job opportunities, good quality raw materials for the market, awareness in using harmless plants as

medicine in the primary health care, so saving much needed foreign exchange and at the same time popularizing the indigenous system of medicine.



Bulu

Terminalia belerica

A, branch with leaves and flowers. B, flowers, lateral view. C, flower opened out. D, fruits.

The Bandaranayake Memorial Ayurvedic Research Institute has set up a medicinal plant research unit with the help of the Department of Ayurveda and WHO. Three nurseries are maintained at Haldummulla, Pattipola and Giradurukotte. A variety of experiments are carried out at these nurseries in propagation methods, harvesting, processing and storing etc. Fairly promising results have been obtained in the process of drying of Nelli (*Phyllanthus emblica*) Ginger (*Zingiber officinale*) Turmeric (*Curcuma longa*). A collection of medicinal plants are kept for the purpose of identification and indepth study. In addition to the above there are arboretums at Bandaranayake Memorial Ayurvedic Research Institute and Janakala Kendra near the Parliamentary complex. Ten species have been identified for commercial level cultivation with the

participation of farmers. At present all these ten items are imported from India.

The selected species are

Sinhala Name	Botanical Name
1. Katuwelbatu	<i>Solanum virginianum</i> L
2. Inguru	<i>Zingiber officinale</i> <i>Roscoe</i>
3. Amukkara	<i>Ruellia tuberosa</i> L
4. Malitha mal	<i>Woodfordia fruticosa</i> (L)Kurz
5. Kapukinissa	<i>Hibiscus priminus</i> Alston
6. Wadakaha	<i>Acorus calamus</i> L
7. Ingurupiyali	<i>Kaempferia galanga</i> L
8. Nelli	<i>Phyllanthus emblica</i> L
9. Ratnitoli	<i>Plumbago indica</i> L
10. Welmadata	<i>Rubia cordifolia</i> L

Generally Katuwelbatu, Amukkara, Nelli grow in the dry zone, Malitha mal grow in Haputale area and Welmadata in Nuwara Eliya district other plants grow throughout the country. Apart from these plants there are many other plants largely imported from India and other neighbouring countries but which could be grown well in Sri Lanka.

Herbal teas are becoming a life style in the west as well as in the Far Eastern countries like Japan, Singapore and Korea. These plants which are used in tea can be cultivated in different parts of Sri Lanka. Plants like Polpala (*Aerua lanata*) Gotukola (*Centella asiatica*) Niramulliya (*Asteracantha longifolia*) can be collected from the wild.

Many of weeds that are destroyed are valuable medicines. For example Kikirindiya (*Eclipta alba*) Kalanduru (*Cyperus rotundus*), Bavila (*Sida cordifolia*) are extensively used as medicine. Apart from the edible oils other than coconut and sesame, there are many other edible oils

like mee (*Maduca longifolia*) Kokum butter (*Garcinia morella*). There are another host of oils which can be used in various industries and medicine, they are Dorama (*Dipterocarpus glandulosus*) Kekuna (*Canarium zeylanicum*).

Domba (*Calophyllum inophyllum*) which could be transformed into another income generating venture. In addition to oils which are used in food and industry, many wild plants contain essential oils, which contain essences and aromas and used in perfumes and cosmetics such as sandalwood, camphor and Hibiscus abelmoschus.

Achiote (*Bixa orellana*) yields a bright orange dye which is widely used to colour foods such as butter, cheese, bread and rice.

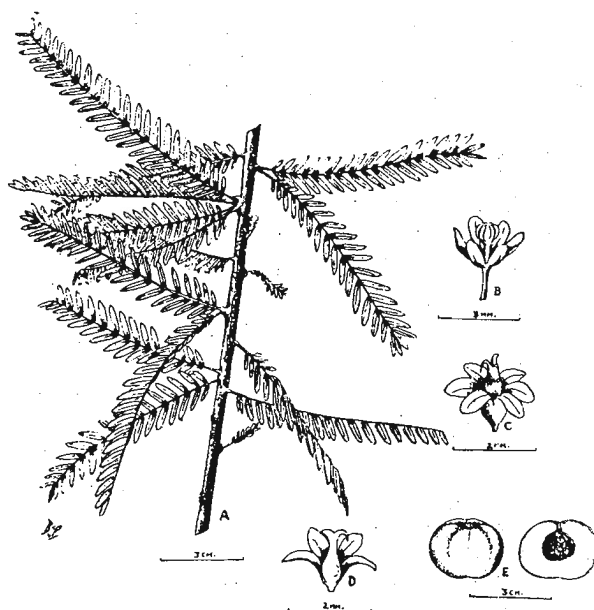
Many plants can be used as natural pesticides property which they have acquired during the long years of evolution as a defence mechanism against insects and flies. The most valid example is neem (*Azadirachta indica*) where the leaves, oil and oil cake are used as natural pesticides. Other examples are pyrethrum and holly basil.

The modern pharmaceutical industry too depends on certain plants for some of their products. Senna, *Catharanthus roseus*, Dioscorea, Datura are some of the important plants.

There are many cultural values attached to plants, Betel leaves play a leading role in Sinhala and Hindu culture. The Bo tree and Banyan tree are sacred to Buddhists and Hindus. According to Buddhist literature twenty eight Buddhas have attained the supreme wisdom under different trees which number seventeen. Five Buddhas have

attained Buddhahood under the Na (ironwood) tree, the national tree. Hindus and Buddhists believe trees are the abode of devas and deities.

An ancient Sanskrit book on gardens called 'Upawana vinoda' gives a vivid description on plants, the uses merits and demerits of growing them in gardens. It lists out the auspicious trees which are to be planted in front of a house and on different sides. It is said Beli (*Aegle marmelos*) and Sandalwood are the most auspicious to plant in front of a house. In astrology it is said that by planting certain special trees which are special to plants, is possible to ward off the evil effects of the planet. All these cultural beliefs help to protect the plants.



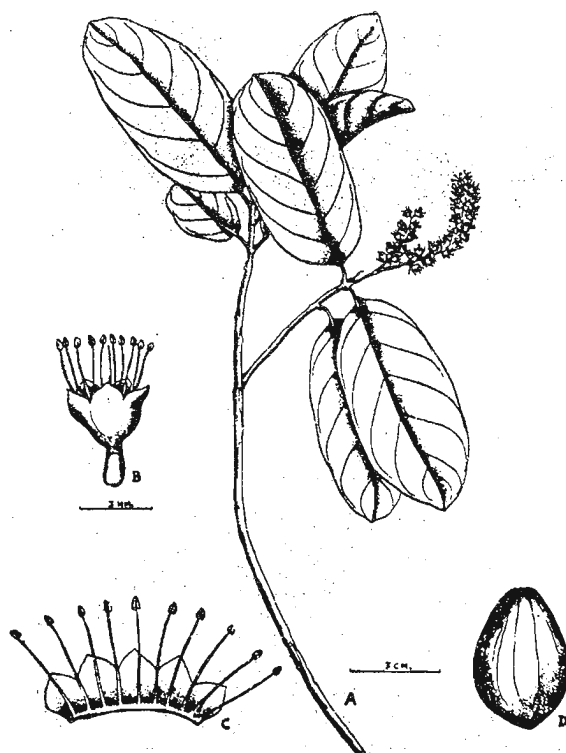
Nelli (*Phyllanthus emblica*.)

A, branch with brachlets and leaves. B, male flower C, female flower. D, longitudinal section of female flower. E, fruit. F, longitudinal section of fruit showing pericarp and seed.

The Bandaranayake Memorial Ayurvedic Research Institute has conducted many workshops and seminars on medicinal plants. The salient points which were discussed were-

- the method of collection with least damage to the tree.
- processing of raw materials
- methods of storage to preserve the quality of the drug)
- methods of propagation
- biological pest control
- use of natural fertilizers
- seasons for collection of roots stems leaves fruits etc. of different plants
- preparation of byproducts through various processing methods

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Aralu (*Terminalia chabula*)

A, branch with flowers. B, flower, lateral view. C. Calyx-tube opened out showing the stamens. D, fruit.

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