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Abstract

All cultures from ancient times to the present day have used plants as a source of medicine. Today, according to the world health organization (WHO), as many as 80% of the world's people depend on traditional medicine for their primary health care needs. The greater part of traditional therapy involves the use of plant extract or their active ingredients. The paper reviews the status of medicinal plants grown in Kiranchi and their uses in indigenous medicine. The Kiranchi area map was used to locate and count the medicinal plants. The pH of the soil at Kiranchi was 8.4, which was found to be suitable for growing various medicinal plants. A total of 180 species of medicinal plants were recorded. This comprises perennials (75%), annuals (20%), and biennials (5%). Nine poisonous plants were also recorded at Kiranchi. Out of 180 plants, 19 used for diabetic mellitus, 16 for skin diseases, 10 for treating respiratory diseases and 8 for fever. Further, grouping based on morphology revealed herbs (38%), shrubs (11%), trees (36%), lianas (3%), climbers (6%), creepers (2%), cactai (3%), and holo parasite (1%) accounted for the total. Based on the usage of plant parts, plants species were grouped as whole plant (30), leaves (60), seeds (16), flowers (13), young pods (7), roots (25), root barks (4), stems (6), dry fruits (14), barks (4), rhizomes (3), gums (2), and galls (1). Out of 180 species, 19 were spinaches. In addition, economically viable medicinal plants such as *Solanum virinianum*, *Acorus calamus*, *Andrographis paniculata*, *plumbago zeylanica*, and *Phyllanthus emblica* were also found growing at Kiranchi. Grouping of the valuable and potential medicinal plants used in indigenous medicine into different categories will help to conserve and promote cultivation of medicinal plants and provides database on the existence of medicinal plants to be used by herbalist doctors in Kiranchi. Such *in situ* conservation should be achieved both by setting aside areas as nature reserves and national parks (collectively termed "protected areas") and by ensuring that as many wild species as possible can continue to survive in managed habitats, such as farms and plantation forests.

Key words: Conservation, Kiranchi, Medicinal plants.

Introduction

Sri Lanka is rich in medicinal plants. Value of medicinal plants is not only to the pharmaceutical industry but these plants are an essential part of the natural ecosystem and they play an important role in maintaining the ecological balance, in conserving soil fertility, sustaining the health of wild and even domesticated fauna.

Medicinal plants are today utilized in both developing and the developed countries where in the developing countries, herbal medicines are thought to form the backbone of the traditional therapeutic armory. Globally, there is a steady increase in demand of medicinal plants for various industries.

The significance of the topic is reflected by the fact that the Ayurveda, Siddha and Unani systems of medicine and traditional medicine is based on use of extracts from plants. Northern Province of Sri Lanka is extremely rich in medicinal plants and in their biodiversity.

The government of Sri Lanka has several programs to promote the cultivation of medicinal plants in the country. Among the countries that practice herbal medicine, India and Sri Lanka stand best in having quality products for preparation of indigenous drugs. (Jayatunga and Jayakody, 1995). For this reason, the naturally existing herbs have a better utility value for

the uses. Therefore, such native medicinal plants have to be preserved and protected from destruction. These medicinal plants are abundantly grown and found in mountainous places, forests, river valleys and open plateaus in nature. Existence of naturally growing herbs have to be documented to prevent them from destruction, and protective measures have to be taken against their extinct.

After the war ended, rehabilitation and development process is taking place in Northern Province. However, many of the naturally growing plant species having medicinal value have destroyed and there is a risk of losing these plants. Therefore promotion of medicinal plant cultivations in these areas is important to preserve genetic diversity and gene pool.

Record keeping of both existing medicinal plants and identified medicinal plant species in Sri Lanka are not complete yet. Therefore, there is a national need to identify available medicinal plants in a scientific manner and to keep inventories of them with local and scientific names. Hence this study aims to explore present status of the naturally growing medicinal plants in Kiranchi to protect them from destruction.

Materials and Methods

Area of the study is Kiranchi under the D.S. division of Jeyapuram and situated in the Kilinochchi District. Study was carried out in November 2012. All the GS areas were taken for the survey according to the map was obtained from GS. The medicinal plants are identified from the information obtained through the field visits conducted by materia medica section of our university. Initially a sample of soil was obtained from the center part of the Kiranchi and soil analysis was done at Agriculture research center, Thirunelvely. The pH of the soil Kiranchi was 8.4, which was found to be suitable for different medicinal plants.

Results and discussion

A total of 180 species of medicinal plants were recorded. This comprises perennials (75%) annual (20%) and biennials (5%) Table 1..

Table 1. Classification of medicinal plants according to plant types

Serial No	Based on morphology	Percentage (%) Out of 180
1	Herbs	38
2	Shrubs	11
3	Trees	36
4	Lianas	3
5	Climbers	6
6	Creepers	2
7	Cacti	3
8	Holo parasite	1

Plant species were grouped according to the part used in medicine (Table 2).

Table 2. Classification according to the parts used in medicine

Serial No	Parts used in medicine	Number of parts used out of 180 medicinal plants
1	Whole plants	30
2	Leaves	60
3	Seeds	16
4	Flowers	13
5	Young pods	07
6	Root	25
7	Root bark	04
8	Dry fruits	14
9	Stems	06
10	Bark	04
11	Rhizome	03
12	Gums	02
13	Galls	01

Out of 180, eight plants are used in treating fever, *Andrographis paniculata*, *Peristrophe bicalyculata*, *Mollugo cerviana*, *Evolvulus alsinoides*, *Melothria heterophylla*, *Toddalia asiatica*, *Azadiracta indica*, and *Tinospora cordifolia*.

16 are used in treating skin diseases namely, *Euphorbia hirta*, *Azadiracta indica*, *Pongamia glabra*, *Indigofera*

aspathaloides, *Aloe vera*, *Lowsonia inermis*, *Ruellia tuberosa*, *Acalypha indica*, *Psoralea corylifolia*, *Thespesia populnea*, *Cassia alata*, *Aristolochia bracteolata*, *Tamarindus indica*, *Heliotropium indicum*, *Trichosanthus bracteata*, and *Vernonia zeylanica*.

Ten are used in respiratory diseases, *Justicia adhatoda*, *Barleria mysorensis*, *Tylophora asthmatica*, *Melothria maderaspatana*, *Ocimum sanctum*, *Solanum trilobatum*, *Solanum xanthocarpum*, *Coleus ambonicus*, *Leucus aspera*, and *Oldenlandia umbellata*

Out of 180 medicinal plant species, 19 spinaches were identified. The Table 3 shows the information about those 19 plants.

Spinaches are easily available, cheap to buy and easily reared in our home garden. While serving as part of our diet they would help to maintain health and cure much illness.

Nine poisonous plants were also recorded in Kiranchi. The table shows the information about those 9 plants,

Table 3. Spinaches

Name of spinach	Medicinal value of the spinach
<i>Cardiospermum halicacabum</i>	Used to rheumatic pain and haemorrhoids. It can be taken for breakfast as porridge and rasam.
<i>Basella alba</i>	Rich in minerals, good laxative. It is cooked with dhal or potato. Helps to produce sleep also.
<i>Aerva lanata</i>	Used in urinary complain as dysuria. It could be prepared as a tea or porridge.
<i>Hydrocotyle asiatica</i>	It is a nervine tonic. It improves the memory power and gives luster to skin. It is taken as a sambol and herbal tea.
<i>Boerhavia diffusa</i>	It is cooked with dhal. It is used in anemia and dropsical conditions.
<i>Amaranthus viridis</i>	The tender leaves in the form of curry either alone or with dhal, cooked with garlic. It relieves body pain. It acts as a diuretic and demulcent.
<i>Cissus quadrangularis</i>	Useful in digestive disorders and scurvy. Rasam is made out of this.
<i>Asparagus racemosus</i>	The thin leaves are taken as porridge. They act as tonic, demulcent and galactagogue.
<i>Cassia auriculata</i>	They are cut into small pieces and tea prepared leaves are refrigerant, astringent and tonic. It is used in polyuria
<i>Solanum nigrum</i>	They are prepared as a curry with dhal or made into chutney and eaten in stomatitis, burning sensation of the stomach.
<i>Sesbania grandiflora</i>	Leaves are laxative and digestive.
<i>Alteranthera sessilis</i>	It gives luster to the skin. Highly recommended for eye diseases
<i>Mentha arvensis</i>	It is used for its aromatic, stomachic, carminative and antispasmodic action. It is used in dysmenorrhoea and dyspeptic conditions
<i>Eclipta alba</i>	It is cholagogue and hepatic tonic. Use externally is a good hair tonic. Leaves eaten frequently improve vision.
<i>Portilacea oleracea</i>	It is refrigerant, diuretic and relieves bilious conditions.
<i>Oxalis corniculata</i>	The soup is used in convalescence of diarrhea patients. Fresh leaves in the form of chutney improve appetite and digestion.
<i>Ipomoea aquatic</i>	It is a laxative and galactagogue
<i>Moringa oleifera</i>	The tender leaves of this famous tree are used as popular vegetable. It is taken for its mineral content
<i>Solanum trilobatum</i>	It is used for respiratory conditions. The leaves are prepared as a chutney.

Table 4. Poisonous plants

Scientific name of poisonous plant	Type of poison	Poisonous part	Parts used in medicine
<i>Ricinus communis</i>	Organic irritant poison	Residuous seeds	Leaves, Seeds, Root
<i>Abrus precatorius</i>	Organic irritant poison	Seeds	Leaves, Root
<i>Calotrophis procera</i>	Organic irritant poison	Latex	Flowers, Leaves, Root bark
<i>Plumbago zeylanica</i>	Organic irritant poison	Root	Root bark
<i>Gloriosa superb</i>	Organic irritant poison	Root	Root (external use)
<i>Argemone Mexicana</i>	Organic irritant poison	Seeds	Seeds (external use)
<i>Datura alba</i>	Deleriant cerebral poison	Seeds	Leaves, Root
<i>Cerebera thevetia</i>	Cardiac poison	Seeds	Root
<i>Strychnos nux-vomica</i>	Spinal poison	Seeds	Seeds

Out of 180 medicinal plants, 19 are used for diabetic mellitus (Table 5).

Information of this study will help to conserve and promote cultivation of medicinal plants at Kiranchi. Programs should be launched to propagate and cultivate all the rare and endangered medicinal species, in-situ and ex-situ. Such as *Peristrophe bicalyculata*, *Salvadora persica*, *Melothria heterophylla*, *Rauvolfia densifolia*, and *Sida cordifolia*. Those plants could be considered as rare

in kiranchi (according to the records obtained during field visits).

Sri Lanka is very rich in medicinal plants resources (Jayaweera, 1977). Even though, many species are used commercially, they are not cultivated. Up to now the required species have been taken from natural locations. Due to the high demand, lesser cultivation and continuous collection of the resources from natural locations, they have diminished and the biodiversity is under threat. Improperly planned clearing of forests for various development schemes,

Table 5. Plant used to treat diabetes mellitus

Scientific Name	Parts used as hypoglycemic
<i>Cassia auriculata</i>	Leaves, Flowers, Root, Bark, Pods
<i>Alargium salvifolium</i>	Seeds
<i>Curculigo orchioides</i>	Tuberous root
<i>Gymnema sylvestre</i>	Leaves
<i>Salacia reticulata</i>	Bark
<i>Hemidesmus indicus</i>	Root
<i>Mimosa pudica</i>	Leaves, Roots
<i>Strychnos potatorum</i>	Seeds
<i>Marsilea grandiflora</i>	Whole plant
<i>Ficus bengalensis</i>	Bark
<i>Murraya koengii</i>	Leaves
<i>Costus speciosus</i>	Rhizome
<i>Acacia Arabica</i>	Gum
<i>Cocainea grandis</i>	Yung pods, Tubers root
<i>Eugenia jumbolana</i>	Seeds
<i>Tinospora cordifolia</i>	Stem
<i>Cassia fistula</i>	Gum, Leaves
<i>Phyllanthus emblicus</i>	Dry fruit
<i>Mangifera indica</i>	Tender leaves

over exploitation of plants for local and export markets resulting in the destruction of medicinal plants. Over extraction or exploitation of endemic species must be totally banned in the protected areas. Collection of the whole plant or root or bark of endemic trees cause much damages to them. Rare or threatened species are affected worst by this way. Endangered species must be identified and laws must be enacted to control extraction.

To prohibit any other activities in large open space, virgin land and around the areas, where the medicinal plants grow lavishly and naturally, this step will assist in extending the cultivation of important herbs in these areas. Kiranchi area also to be proclaim as "Natural Herbal Plants Protection Zone". Unnecessary use of medicinal plants should be banned.

References

- Jayaweera, D.M.A 1979-1981. Medicinal plants used in Sri Lanka (indigenous and exotic) Volumes 1-5. *National Science Sri Lanka*, Colombo, Sri Lanka.
- Kirtikar, K.R. and Basu, B.D 1987-1988. Indian medicinal plants. Volume 1-4. International Book Distributors, 9/3, Rajpur Road, 1st Floor, Deheradun 248001, India. [IM]
- Narkarni, K.M. 1954. Indian material medica. Volume 1. Popular Book Depot, Bombay and Dhootapapeshwar Prakashan Limited, Panvel. [MM],
- Jayatunga Y.N.A. and Jayakody R.L. 1995. Symposium on "Medicinal plant- biodiversity and economy" Environment committee of the SLAAS. Colombo-7.
- Mohan Ram, H.Y. Sharma, A.K. and Sukhdev, 1998. The Wealth of India (volumes 1-3) Council of Scientific & Industrial Research New Delhi.