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SURVEY OF HERBAL PLANTS IN SURROUNDING OF DISTRICT SIDDHA HOSPITAL NARUVILIKULAM, MANNAR, SRI LANKA

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ABSTRACT

Medicinal plant survey was carried out in surrounding of District Siddha Hospital Naruvilikulam, Mannar, Sri Lanka for the express purpose of discovering the distribution of herbs and aware the public to fulfill the medicinal requirement and leads to a healthier life through medicinal plants. Ancestors named the village by using abundant herbs habited on this area. *Cordia dicheatoma* (*Naruvili*) plant abundantly distributed in this area. For the reason that, this village named as Naruvilikulam. There are 153 species belonging to 57 families were recorded. Family Fabaceae ranks at the top having 14 medicinal plants species. Around 27 species can be use as Spinaches and 15 species can be use in diabetic management. Habits such as Herbs(59), Shrubs(19), Torn Shrub(09), Creeper(07), Tree(18), Moderate tree(04), Climber(22), Grass(5) , Torn climber and Aquatic plant. Arid zone families that are Euphorbiaceae and Cucurbitaceae (09), Laminiaceae(08), Asteraceae and Amaranthaceae (07), Malvaceae , Arecaceae and Solanaceae (06) , Acanthaceae and Verbanaceae (05) , Zingiberaceae , Apocynaceae and Poaceae (04), Rutaceae, rubiaceae, Araceae and Capparaceae(03) are commonly distributed in this area. *Vernonia zeylanica* is medicinally important endemic plant species abundantly distributed in this area. The present investigation revealed that the medicinal plants still play a vital role in the primary health care.

Keywords: *Nauvilikulam, Fabacea, Arid zone, Spinaches, Plant Survey*

Introduction

Biodiversity depends not only on the diversity of living organisms and ecosystems but also on bio cultural diversity (Maffi and Woodley, 2010). This bio cultural diversity is described by herbalism and ethnobotany, which investigate the relationship between humans and plants (Hoffmann, 2003). Several thousand-plant species have been reported to posse's medicinal properties and around 2000 species are referred in literature. It is estimated that around 8,000 plant species are used in Indian system of medicine and around 25,000 effective plant species based on formulation used in folk medicine.

For thousands of years, medicinal plants have played an important role throughout the world in the treatment and prevention of a variety of diseases. Most people in the world still rely on medicinal plants and most of them have a general knowledge of medicinal plants, which are used as first aid remedies, to treat cough, cold, fever, headache, poisonous bites and some simple ailments (Muniappan and Savarimuthu, 2011). Ethnobotanical information about plants are usually collected from traditional healers, community leaders, and native people of rural and urban areas (Ampitan TA, 2013).

The gathering and use of local resources are still important aspects of the phyto therapeutic traditions in many regions of Mexico. Plants are also used for ornamental, nutritional (food and fodder), pharmaceutical, aromatic, religious or construction purposes. Aspects such as the richness and diversity of cultures will increase the relative importance and roles (uses) that each plant could have in respective communities (Eduardo Alberto Lara Reimers *et al*, 2019).

The use of herbal medicines in many rural areas of our country has been observed for a long time. In each case, they have seized it, despite obstacles we can scarcely imagine. Medicinal properties of chemicals found in herbs. Medicinal Properties of herbs varies with plant habitat and geography. Mannar District found in the Arid Zone. According the Medicinal plants of the Arid Zones in Mannar district, Research Volume xiii, Published by UNESCO mentioned families of the herbs found in the district are Amaryllidaceae, Asclepiadaceae, Cactaceae ,Capparidaceae, Chenopodiaceae, Compositae ,Cucurbitaceae, Labiatae, Leguminosae ,Liliaceae ,Solanaceae and Umblliferae.

The aim of the present studies is to list the medicinal plant distribution in the surrounding area of District Siddha Hospital, Naruvilikulam, Mannar Sri Lanka. In this district, human life and culture have directly or indirectly been associated with and influenced by the surrounding environment. People

live partly on leaves, tubers and fruits of dry zone plants and use plant drugs as medicines, thereby offering much scope for Ethnobotanical studies. The objective is to establish a documentation of the plants distribution in the surrounding area of District Siddha Hospital , Naruvilikulam, Mannar, Sri Lanka with create awareness to the local communities about the conservation strategies of these valuable genetic resources.

Methodology

Fieldwork was carried out from May to August of 2021 in surrounding of District Siddha Hospital Naruvilikulam, Mannar.

Figure 1

Location of Study area 4.5 Acres .The Mannar district lies on the following geographical coordinates and with a geographical area of 1,996 km².

The map of the study area: Surrounding of District Siddha Hospital Naruvilikulam, Mannar showed in Figure 1.
Average temperatures range from 167°F (July) to 183°F (May). The rainiest months are February, December and November.
Rain fall 25mm-130mm.
Wind 10mile/h – 25mile/h.

Ethnobotanical Analysis

Fieldwork was carried out from May to August of 2021 in surrounding of District Siddha Hospital Naruvilikulam, Mannar. The plants were collected by field visit with the local people of Naruvilikulam. People of this region can easily understand Tamil and can also communicate in that language. In order to document the utilization of medicinal plants, a total field survey was carried out in this area. Field visits were conducted several times.

Intensive botanical explorations were undertaken in selected places of Naruvilikulam to find out various medicinal plants used for different ailments in the form of plant parts such as leaves, stems, flowers, fruits and seeds. Collected knowledge about the plant uses (local names, indication of use, used plant parts, places/methods/rituals of harvesting and administration mode). Also observed during fieldwork. Each of the plant material was assigned a field note books and documented as to Binomials with family, local name, part used and therapeutic uses, plant parts that were identified as having use in ethno botany were collected, compressed, the voucher specimens were collected and identified by referring to standard flora (Gamble 1936; Matthew, 1983).The plant material was collected by the authors and taxonomically identified. The botanical names of the species were verified with The Plant List (2013) (http://www.theplantlist.org)

Result and Discussion

In this review, there are 153 species belonging to 57 families were recorded. Among 153 species 103 species naturally habited in this area and 50 species were cultivated

Distribution of Spinaches in the surrounding area of District Siddha Hospital, Naruvilikulam, Mannar

1. *Pisonia grandis*
2. *Trianthema decandra*. Linn
3. *Boerhaavia diffusa* linn
4. *Gymnema sylvestre*
5. *Digera muricata*. Linn
6. *Melochia corchorifolia*.Linn
7. *Aerva lanata* linn
8. *Rungia parviflora*
9. *Alternanthera sessilis* Linn
10. *Centella asiatica* linn
11. *Cardiospermum halicacabum* Linn
12. *Dichrostachys cinerea*
13. *Cissus quadrangularis* Linn
14. *Cleome viscosa* linn
15. Sesbania grandiflora (Linn)
16. *Achyranthes aspera* Linn
17. *Mukia maderaspatana* linn
18. *Asparagus racemosus*
19. *Physalis minima*
20. *Spermacoce hispida* Linn
21. *Amaranthus dubius*
22. *Amaranthus spinosus*
23. *Melothria heterophylla*
24. *Marsilea quadrifolia*
25. *Ipomoea marginata*
26. *Portulaca oleracea* Linn
27. *Trianthema portulacastrum* Linn

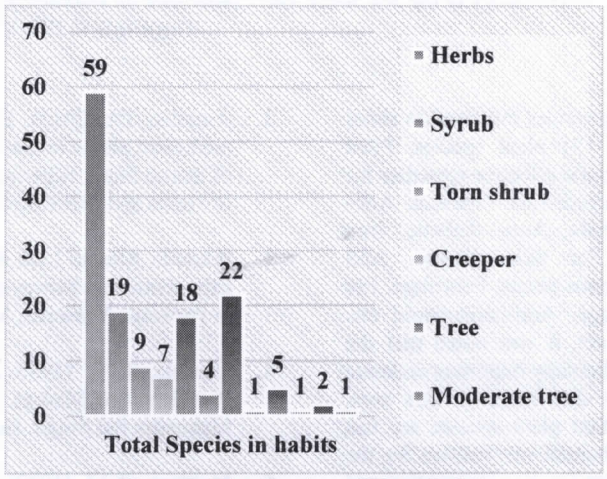

Chart 1: Distribution of Plant habits

The plants documented in this survey belong to the habits such as Herbs(59), Shrubs(19), Torn Shrub(09), Creeper(07), Trees(18), Moderate trees(04), Climbers(22), Torn climber(1), Grasses(5) , Short stem plant(01), Aquatic plant (01)and fungus(01)

Table 1: Distribution of Plant families

Families	Numbers of Species of each families
Poaceae , Apocynaceae, Zingiberaceae	4
Cyperaceae, Phyllanthaceae, Pedaliaceae, Zygophyllaceae, Sapindaceae, Lausoniaceae,Crassulaceae , Crassulaceae, Anacadiaceae , Aristolochiaceae, Muntingiaceae, Caesalpinaceae, Annonaceae, Passifloraceae, Asclepidaceae, Marsileaceae , Aponogetonaceae, Rhamnaceae, Agaricaceae , Commelinaceae, Portulacaceae, Salvadoraceae, Menispermaceae, Molluginaceae, Polygalaceae, Musaceae, Punicaceae, Pandanaceae, Costaceae, Piperaceae, Apiaceae, Violaveae	1
Asteraceae, Amaranthaceae,	7
Fabaceae	14
Rutaceae, Rubiaceae, Capparaceae, Araceae	3
Euphorbiaceae, Cucurbitaceae	9
Arecaceae, Malvaceae, Solanaceae	6
Aizoaceae, Nyctaginaceae, Leguminosae, Boraginaceae, Convovulaceae, Vitaceae, Liliaceae, Melliaceae	2
Acanthaceae, Verbenaceae	5

There are 153 species belonging to 57 families were recorded.

Family Fabaceae ranks at the top having 14 ethomedicinal plants species, Followed by Euphorbiaceae and Cucurbitaceae each 9 species, Laminiaceae 08 species, Asteraceae and Amaranthaceae each 07 species, Malvaceae, Arecaceae and Solanaceae each 06 species, Acanthaceae and Verbanaceae each 05 species, Zingiberaceae, Apocynaceae and Poaceae each 04 species, Rutaceae, rubiaceae, Araceae and Capparaceae each 03 species , Aizoaceae, Nyctaginaceae, Leguminosae, Boraginaceae, Convolvulaceae, Vitaceae, Liliaceae and Meliaceae each 02 species and The remaining genera had only one species each.

The collected information indicates that the study area is rich in medicinal plants, and the results contribute to spread their uses. The social importance of the medicinal plants in the community is quite important for the public health and the conservation of traditional knowledge, and good management is required. The plants used have a mostly native origin. Specially Arid zone plant Species distribution was

found. The present study provides information about some beneficial uses of 151 plant species. Plant species are claimed to be quite effective remedies for cutaneous affection of Expectorant, Nutrient, Anti-vatha, Liver tonic, Diuretic, Anti- diabetic, Iron compound, Astringent, For Skin disease, Anti mantha, Anti-dote, Poisonous plants, Febrifuge, For Gynecological , Vermifuge, Anti-hemorrhoid etc. During the research project, it was noted that the *Vernonia zeylanica* is medicinally important endemic plant species abundantly distributed in this area. Some medicinally important plant species are fast dwindling, mainly due to human interference. So, the area needs proper protection for the conservation and survival bio-resources.

Conclusion

Through this ethnobotanical survey, the availability and presence of many medicinal plants have been investigated and verified. The conservation of medicinal plants diversity of these groves is therefore most important for the in-situ conservation and cultivation of these species. The demand of medicinal plants is increasing day-by-day within and outside the country and serious and effective measures are required to meet challenge. Therefore, there is an urgent need for a local inventory of medicinal plants, to identify the species that merit priority and to formulae strategy for the in-situ conservation and cultivation of these species. The safety and efficacy of cited plants needs to be investigated by phytochemical and pharmacological analysis, as it has been previously performed on several other traditionally used plant species. The value of using ethnobotanical information is to initiate drug discovery efforts.

This study also gathered a broad spectrum of information concerning medicinal plants distributed in surrounding area of District Siddha Hospital Naruvilikulam, Mannar. Due to lack of interest among the younger generation of tribal the traditional and conventional knowledge is unable to transfer the new generation. We suggested that these plants can be used as drugs by pharmacologically unexplored areas, which may be utilized for the better human health.

References

1. Muniappan A, Savarimuthu I (2011). Ethnobotanical survey of medicinal plants commonly used by Kani tribals in Tirunelveli hills of Western Ghats, India ttps://doi.org/10.1016/j.jep.2011.01.029
2. Ampitan TA (2013). Ethnobotanical survey of medicinal plants in Biu Local Government Area of Borno State, Nigeria. Comprehensive Journal of Herbs and Medicinal Plants 2(1):7-11.
3. Eduardo Alberto Lara Reimers et al (2019), An Ethnobotanical Survey of Medicinal Plants Used in Papantla, Veracruz, Mexico, Plants , 8, 246;
4. Gamble, J. S. (1993 & 1994): Flora of the Presidency of Madras. Vol I-III. Bishen Singh Mahendra Pal Singh. Dehra Dun-India.
5. Matthew, K.M. (1982): The Flora of the Tamil Nadu Carnatic. The Rapinat Herbarium, St Joseph's College, Tiruchirapalli, India.
6. Perumalsamy, R and S. Ignacimuthu. 2000. Antibacterial activity of some folklore medicinal plants used by tribals in Western Ghats of India. Journal of Ethnopharmacology, 69: 63 - 71.
7. Saranraj, P and D. Sujitha. 2015. Mangrove Medicinal Plants: A Review. American – Eurasian Journal of Toxicological Sciences, 7(3): 146 – 156
8. Saranraj, P and P. Sivasakthivelan 2012. Screening of antibacterial activity of medicinal plant Phyllanthus amarus against Urinary tract infection (UTI) causing bacterial pathogens. Applied Journal of Hygiene, 1 (3): 19 – 24
9. Ramarajan S and Muthukumarasamy S (2012), Ethno Medicinal Plant Survey of Srivaikundam village of Tuticorin district, Tamilnadu, India, International Journal of Advanced Research in Biological Sciences ISSN: 2348-8069, Volume 3, Issue 9
10. P. Saranraj L. Bhavani and K. Suganthi2 (2016), Ethnobotanical survey of medicinal plants from Vellore district, Tamil nadu, India.
11. Vaithya rathinam K.S.Murukeshamuthaliyar (Siddha material medica) ,Department of Indian Medicine and Homeopathy .
12. National Botanical garden, Srilanka, Progression report, 2013. file:///C:/Users/Admin/Desktop/Plant%20survey/performance-report-department-of-national-botanic-gardens-2013-ta.pdf
13. Siddha medicine, Magazine of the Siddha medical students' union, University of Jaffna Srilanka, Life sciences Leaflets 6: 47-53, ISSN 2277-4297(Print)0976–1098(Online).

14. Kumar, S and F. Parveen, S. Goyal and A. Chouhan. 2005. Indian Forester, 131 (3): 371 - 378.

15. Ethnobotanical Leaflets, 13: 1 - 32. 4. Chopra, R. N and S. L. Nayar, I. C. Chopra. 1986. Glossary of Indian Medicinal Plants. Council of Scientific and Industrial Research, New Delhi, India.

16. S. T. Mahwasane, L. Middleton, and N. Boaduo, "An ethnobotanical survey of indigenous knowledge on medicinal plants used by the traditional healers of the Lwamondo area, Limpopo province, South Africa," South African Journal of Botany, vol. 88, pp. 69–75, 2013

17. T.V. SambasivamPillai, Siddha Medical Dictionary (Volume I-Volume V), Department of Indian Medicine and Homoeopathy(Govt.Of TamilNadu)

18. Murugesa Mudhaliyar , Gunapadam – Mooligai vaguppu