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Medicinal Plants Diversity in Kundri Hill T.N Palayam Range of Sathyamangalam Reserve Forest in Erode District, Tamil Nadu

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ABSTRACT

The survey was carried out in Kundri hill area, it has documented a total of 75 angiospermic plants and one pteridophyte with medicinal value. Of these 75 angiospermic plants, 68 species are dicotyledons and 7 species are monocotyledons. Within the dicotyledons, 29 species are polypetalae, 34 species are gamopetalae and 5 species are monochlamydeae. Gymnosperms were almost nil. The angiospermic plants surveyed in the Kundri belong to 19 polypetalae families, 15 gamopetalae families, 6 monochlamydeae families and 5 monocotyledons families. In the present account 75 species of angiosperms and one fern are used as ethnomedicine for various disorders and diseases like piles, menorrhagia, epitaxis, alexipharmic, burns, disease of blood, throat disorders, chronic bronchitis, rheumatism, anaemia, asthma, nose and eye diseases, indigestion, dysentery, diarrhoea, dyspepsia, fever, vaginal infections, tumors, neuralgin, splenopathy, leucorrhoea, ulcers, muscular pain, rheumatoid arthritis, urinary problem, skin infections, eczema, painful swelling of joint, flatulence, cardiac disorders, oxytocic, cancer, leucoderma, diabetes, allergic rhinitis, hiccough, oedema, pruritus etc

Keywords: Kundri hills, Medicinal Plants, Data collection, Ethnobotany

ARTICLE INFO

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1. Introduction

Medicinal plants are the local heritage with global importance. The knowledge of medicinal plants has been
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accumulated in the course of many centuries based on the different medicinal system such as Ayurveda, Unani,

Siddha and Homeopathy in India. In recent years, the use of traditional medicine information on plant research has again received considerable interest. It is estimated that 70% to 80% of the people worldwide rely chiefly on the traditional health care system and largely on herbal medicines. India is tenth among the plant rich countries of the world, fourth among the Asian countries. Moreover, India is also one among the 12- mega biodiversity centers of the world by having over 47,000 plant species. Its diversity is unmatched due to the presence of 16 different agro climatic zones, 10 vegetation zones and 15 biotic provinces.

Scientific investigations of medicinal plants have been initiated in many parts of our country because of their contributions to health care. Recently considerable attention has been paid to utilize eco friendly and bio-friendly plant based product for the future preservation and for the cure of different human diseases. It is documented that 80% of the world's population have faith in traditional medicine, particularly plant drug for their primary health care [1].

According to a survey of World Health Organization, the practitioners of traditional system of medicine treat about 80% of patients in India, 85% in Burma and 90% in Bangladesh. It is estimated that at least 2, 65,000 species of seed plant exist on earth, only less than a half percent of these have been studied exhaustively for their chemical composition and medicinal value [2].

A vast knowledge of how to use the plants against different illness may be expected to have accumulated in areas of where the use of the plant is still of great importance. The plants used in ethnomedicine contain a wide range of substances that can be used to treat chronic as well infectious diseases. Ethnomedicinal practices are preferred largely because medicinal plants are less expensive, readily available and reliable and they are considered to have fewer side effects than modern medicines.

Medicinal plants are the wealthy bio-resources of drugs of traditional medicinal systems, modern medicines, nutraceuticals, food supplements and folk medicines, pharmaceuticals, intermediate and chemical entitled for synthetic drugs [3]. In the present study the diversity of ethnomedicinal plant species used by tribes and villagers in Kundri Hill of Thukkanayakkan palayam range of Sathyamangalam Reserve forest in Erode district of Tamil Nadu was explored and the traditional medical practices in healing the ailments were documented.

2. Material and methods

Study area

Kundri hill is about 100 km away from Erode. The total area of Kundri is about 700 hectares, the latitude is N 11° 38.99'. The longitude is E 77° 15.654' and the altitude is 817 meter above MSL. The temperature of the hill is around 25°C in the winter and in summer it is 33°C, the annual rainfall of this hill ranges between 10 mm and 90 mm. The people of the Kundri hill and the surrounding areas are Hoorali, Lingayats, Ambadi Naicker, Journal of Pharmaceutical and Biological Research

Okulikavudar, Thoraiyar and Solagars. Hoorali and Lingayats are ethnic people in habiting the hill around 300 years. The people speak Tamil and Kannada, ethnic societies speak Hoorali language. The Kundri is surrounded by Ariyur, Nadur, Kal kadambur, Moola kadambur and Chinnasalapatty.

Data collection:

The plants were collected during their flowering period. Voucher specimens usually one twig due to conservation and preservation of biodiversity of all medicinally valuable plants were collected, poisoned, dried and mounted with voucher number following the conventional methods [4] and deposited at the department of Botany Herbarium, Vellalar College for Women, Erode, Tamil Nadu.

Photographs of few plants were also taken to supplement the herbarium. Identification was done by using Flora of the Presidency of Madras [5] and The Flora of the Tamil Nadu Carnatic [6,7,8,9&10]. Flora of Tamil Nadu Series [11,12&13] was used at best for nomenclature. The plants were enumerated following the Natural system of Classification of Bentham & Hooker with binomial, local name, description of the plant and uses. A survey of literature was made to find out the active principles of drug plants identified [14,15&16].

3. Results and discussion

Documentation

The present survey in Kundri hill area has documented a total of 75 angiospermic plants and one pteridophyte with medicinal value. Of these 75 angiospermic plants, 68 species are dicotyledons and 7 species are monocotyledons. Within the dicotyledons, 29 species are polypetalae, 34 species are gamopetalae and 5 species are monochlamydeae. Gymnosperms were almost nil. The angiospermic plants surveyed in the Kundri belong to 19 polypetalae families, 15 gamopetalae families, 6 monochlamydeae families and 5 monocotyledons families.

Discussion

The variability in altitude, climate, and rainfall has contributed to the rich floristic diversity of this region which can rightly be called a treasure house of medicinal plants. The soil is of sandy loam type with approximately neutral pH. The soil is in fact the very hearts of the life layer known as the biosphere because it represents a zone, where in plant materials are produced, held, maintained and are available to plants through their roots and the soil is a natural body of vegetation, mineral and organic constituents as reported by Joffe [17].

The plants surveyed in Kundri belong to 46 families. Caesalpiniaceae and Compositae held the dominant position (7 species each) which is followed by Amarantaceae (4 species), Fabaceae and Solanaceae (3 species each). Despite the fact that the area is environmentally degraded, moderate number of medicinal plants categorized in diverse genera and families were recorded. This demonstrates the taxonomic diversity of medicinal plants grown in the Kundri hill as well as the immense knowledge associated with the plants.

Table 2: The list of Some medicinally important plants in Kundri hill

| S.No | Botanical name | Common name | Parts used | Mode of Usage |
|------|--------------------------------------|-------------------|------------------|--|
| 1 | <i>Capparis zeylanica</i> L. | Adanday | Whole plant | Antipyretic, analgesic, antiinflammatory, antimicrobial |
| 2 | <i>Cleome monophylla</i> L | Naikadugu | whole plant | Used to treat swelling and to prevent the formation of pus. |
| 3 | <i>Polygala elongata</i> Klein. | Periyanka | whole plant | Antimicrobial agent |
| 4 | <i>Mesua ferrea</i> | Karunangu | whole plant | Cures piles, menorrhagia and epitaxis. |
| 5 | <i>Vateria indica</i> L. | Velleikuntrikam | Bark, leaf | Alexipharmic, leaf cure burns and disease of blood |
| 5 | <i>Adansonia digitata</i> L. | Papparappuli | whole plant | To treat diarrhoea, anaemia and asthma. |
| 6 | <i>Grewia aspera</i> Roxb | Palisamaram | Leaves | To treat nose and eye diseases, piles and rheumatism |
| 8 | <i>Biophytum sensitivum</i> DC. | Nilakurunji | whole plant | Antiinflammatory, antioxidant, antitumor, chemo protective, radio protective, antiangiogenesis and wound healing |
| 9 | <i>Ailanthus malabarica</i> Dc. | Perumaram | Dried stem bark | Used in dysentery and diarrhoea |
| 10 | <i>Atalantia monophylla</i> Correa. | Kattunaragam. | Fruit | To treat rheumatism. |
| 11 | <i>Soymida febrifuga</i> Adr. Juss. | Shem | Shem | Diarrhoea, dysentery and fever |
| 12 | <i>Cayratia carnosa</i> Gagnep | Kattupirandai | Whole plant | Used in tumors, neuralginsplenopathy, leucorrhoea and astringent |
| 13 | <i>Cardiospermum canescens</i> Wall. | Kattumudakathan | Whole plant | Dysentery and rheumatoid arthritis. |
| 14 | <i>Crotalaria pallida</i> Aiton. | Kilukilikki chedi | whole plant | To treat urinary problem, fever, prevent skin infections and eczema |
| 15 | <i>Mundulea sericea</i> Subsp. | Karumporasu | Leaves | Antimicrobial activities |
| 16 | <i>Pterocarpus santalinus</i> L. | Semmaram | Oil and wood | Oil is used to treat spider bite, wood paste removes warts |
| 17 | <i>Caesalpinia coriaria</i> Willd. | Kotivelamaram | whole plant | Antimicrobial agent |
| 18 | <i>Caesalpinia sappan</i> L. | Pathangam | Wood | Cures dysentery, diarrhoea and skin ailments |
| 19 | <i>Cassia tora</i> L. | Tagerai | Leaves, | Itching, psoriasis, eczema and dermatomycosis |
| 20 | <i>Cassia italica</i> Subsp | Nila avari | Leaves | Antimicrobial, antitumor, purgative, antipyretic, analgesic and antiviral drug. |
| 21 | <i>Cassia auriculata</i> L. | Avaram | Root | fever, diabetes, disease of urinary system and constipation |
| 22 | <i>Saraca indica</i> L. | Asoka | Whole plant | oxytocic, anticancer and antimenorrhage |
| 23 | <i>Pterolobium indicum</i> R.Rich. | Indumullu. | Leaves | Diarrhoea |
| 24 | <i>Xylia xylocarpa</i> Taub | Irul | Bark and seeds | To treat diarrhoea, leucoderma, vomiting, diabetes, fever, allergic rhinitis, bark is used as anthelmintic |
| 25 | <i>Acacia latronum</i> Willd. | Karodei. | Leaves and bark | Used as cardio tonic and diuretic drug. |
| 26 | <i>Careya arborea</i> Roxb. | Karekku | Whole plant | To treat cough and cold. |
| 27 | <i>Ammannia baccifera</i> L. | Neermelneruppu. | Leaves | Laxative, stomachic, strangury, cure biliousness, ulcers and rheumatic pain |
| 28 | <i>Bryonia laciniata</i> L. | Sivalingi | Whole plant | Used as an antibacterial and antifungal, antiinflammatory, cytotoxic, analgesic and antipyretic agent. |
| 29 | <i>Alangium salvifolium</i> Wang. | Alangi | roots and fruits | Rheumatism and hemorrhoid |

| | | | | |
|----|-------------------------------------|------------------|--------------------|--|
| 30 | <i>Anthocephalus cadamba</i> Miq | Vella Cadambu | Bark | Febrifuge, hypoglycemic, antiinflammatory, digestive, carminative, diuretic, expectorant, antiemetic and wound healing drug. |
| 31 | <i>Adina cordifolia</i> Hook.f. | ManjaKadambu | Bark | Inflammations, biliousness, and skin disease |
| 32 | <i>Eclipta alba</i> Hassk. | Karisalanganni | Whole plant | Curesanaemia, diphtheria, eczema and dermatitis. |
| 33 | <i>Ageratum houstonianum</i> Mill. | Pampilla. | Whole plant | Antibacterial activity. |
| 34 | <i>Blainvillea latifolia</i> D.C. | Vanga- Mugali | Leaves and flowers | To treat leucorrhoea in females |
| 35 | <i>Synedrella nodiflora</i> Gaertn. | - | Whole plant | Antiinflammatory, antioxidant, antimicrobial, analgesic, antipyretic agents |
| 36 | <i>Bidens pilosa</i> L. | MukkuthiPoo | Whole plant | Cold, flu, hepatitis, general bacterial infections, inflammationand urinary tract infections |
| 37 | <i>Notonia grandiflora</i> DC | Masakathu thalai | whole plant | Antimicrobial activities |
| 38 | <i>Chromolaena odorata</i> L. | Communist alai | Leaves | To treat skin wounds, rashes |
| 39 | <i>Plumbago zeylanica</i> L. | Chitrak | whole plant | Digestive and carminative drug. |
| 40 | <i>Diospyros melanoxylon</i> Roxb. | Karai | whole plant | Cure fever, diabetes, snake bites, diarrhoea, biliousness and ulcer |
| 41 | <i>Thevetia neriifolia</i> Juss. | Manjalarali | Bark | Tonic and cardiac stimulant. |
| 42 | <i>Asclepias curassavica</i> L. | Sirunkalli | whole plant | abortifacient drug |
| 43 | <i>Caralluma adscendens</i> R.Br. | Kallimulayan | Latex,stem | The latex is applied to warts and bites, stem used in chest, cardiac and obesity problems. |
| 44 | <i>Strychnos nux-vomica</i> L. | Yetikottai | whole plant | stimulant and highly poisonous |
| 45 | <i>Exacum pedunculatum</i> L | Kanapoondy | Whole plant | To treat stomachache and fever |
| 46 | <i>Cordia obliqua</i> Willd | Narivizhi | Fruit | To treat cough, the disease of chest and chronic fever |
| 47 | <i>Evolvulus nummularius</i> L. | Elikkathu ilai | Leaves | Purify blood and improve memory power. |
| 48 | <i>Solanum pimpinellifolium</i> L. | Siruthakkali | Fruit | To treat rheumatism and severe headache. |
| 49 | <i>Physalis angulata</i> L. | Munnuthakalee | whole plant | Used as a remedy for abscesses, cough,fever and sore throats |
| 50 | <i>Physalis pruinosa</i> L. | Milaguthakkali. | whole plant | Used to treat asthma, microbial infections and liver diseases |
| 51 | <i>Limnophila roxburghii</i> G.Don. | Manganari | Whole plant | Antimicrobial, antioxidant and vascular protective properties |
| 52 | <i>Hygrophila angustifolia</i> | Neermulli | Whole plant | Antimicrobial activities |
| 53 | <i>Justicia betonica</i> L. | Velimunkil | Whole plant | Used in the treatment of gastrointestinal complaint |
| 54 | <i>Stachytarpheta indica</i> Vahl. | Seemainayuruvi | Whole plant | Treating intestinal worms, venereal disease, rheumatic inflammation, cataract and open sores |
| 55 | <i>Vitex altissima</i> L.f. | Mayilaadi | Leaves and seeds | Used externally for rheumatism and inflammations of joints |
| 56 | <i>Leonotis nepetaefolia</i> R.Br. | Iranaberi | Whole plant | Antiinflammatory,antidiabetes and antinociceptive properties. |
| 57 | <i>Ocimum gratissimum</i> L. | Ram tulasi | Whole plant | To treat rheumatism and cough |
| 58 | <i>Alternanthera pungens</i> Kunth. | - | Leaves | Leaf extract is used in asthma, strangury, ammenorrhoea, dropsy, antidote to alcohol poisoning, rheumatism and |

| | | | | |
|----|---|--------------------|--------------------|--|
| | | | | vermifuge. |
| 59 | <i>Alternanthera paronychioides</i> A. St. Hill. | - | Whole plant | Antioxidant, antiglycotoxic and antidiabetic properties. |
| 60 | <i>Digera muricata</i> L. | Kattu thoiyal | Whole plant | Hepatoprotective, antimicrobial, antioxidant, antidiabetic, anthelmintic agent. |
| 61 | <i>Gomphrena serrata</i> L. | Vatanakappuceti | Leaves and flowers | Oliguria, hypertension, kidney problems, hoarseness and jaundice. |
| 62 | <i>Chenopodium ambrosioides</i> L. | Chakravarthykeerai | Whole plant | Used in stomach pain, cough, asthma, fever and headache. |
| 63 | <i>Santalum album</i> L. | Santhanamaram | Sandal wood | Wood oil is used to treat skin disorder, facial warts and pimples, used as refrigerant. |
| 64 | <i>Euphorbia cyathophora</i> Murray. | Palapudu | The whole | Antimicrobial and wound healing activities. |
| 65 | <i>Mallotus philippinensis</i> Muell. Arg. | Kapli | The whole | Antifilarial, anti-inflammatory and immunoregulatory, antioxidant, antiradical, hepatoprotective and purgative activities. |
| 66 | <i>Cannabis sativa</i> L. | Ganja | The whole | Used to treat asthma, anorexia, rheumatism, cardiovascular disease, blood pressure and skin allergies. |
| 67 | <i>Ficus glomerata</i> Roxb. | Athi | Root, leaves | Antidiabetic, antioxidant, antidiarrhoeal, memory enhancing, cardio protective, gastroprotective, antitussive, wound healing and antiulcer properties. |
| 68 | <i>Artocarpus integrifolia</i> L. | Palamaram | Seeds | Seeds are used to relieve biliousness and aphrodisiac |
| 69 | <i>Curculigo orchioides</i> Gaertn. | Nilapanai kilangu | Root stocks | Skin diseases, asthma, bronchitis, jaundice, diarrhoea, dyspepsia, colic and vomiting |
| 70 | <i>Agave americana</i> L. | Nar kathalai. | Whole plant | Antiseptic, wound healing and anti-inflammatory properties. |
| 71 | <i>Phoenix humilis</i> Royle. | Malai-icham | Fruitis | Memory disturbances, fever, loss of consciousness and nervous disorders. |
| 72 | <i>Caryota urens</i> L. | Konda- panei. | Whole plant | To treat gastric ulcers, headache and rheumatic swellings |
| 73 | <i>Colacasia antiquorum</i> Schott. | Shana- dumpa. | whole plant | To treat asthma, arthritis, diarrhoea, internal hemorrhage, neurological disorders and skin diseases, the rhizome has analgesic, anti-inflammatory, anti cancer and hypolipidemic effects. |
| 74 | <i>Kyllinga nemoralis</i> J. R. Forst & G. Forst. | Velluthaneerbasi | whole plant | Antioxidant and antibacterial activities. |
| 75 | <i>Cymbopogon flexuosus</i> Wats | Chukkunaripullu | Leaves | Antiseptic, antifungal and antipyretic agent. |
| 76 | <i>Actinopteri sradiata</i> Link. | Visirichedi | whole plant | To control blood pressure, tuberculosis and dried plant is used to cure cough. |

4. Conclusion

The survey revealed that medicinal plants still play a vital role in the primary health care of the people and also offers

a model for studying the relationship between plants and people within the context of traditional medical system. The

purpose of standardizing traditional remedies is obviously to ensure therapeutical efficacy. Higher plants as sources of bioactive compounds continue to play a dominant role in the maintenance of human health. Green plants represent a reservoir of effective chemotherapeutants, non-phytotoxic, more systemic, easily biodegradable and a rich source of secondary metabolites with interesting biological activities.

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