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Taxonomic and Ethnomedicinal analysis of angiosperm plants in Kumarankundru hill, Annur, Coimbatore

S Preethi Jenifer and K Lekha

Abstract

Taxonomy is the study to gather acquaintance of various kinds of plants in earth and its systematic grouping, the main aim of taxonomist to deal with the identification, nomenclature and classification of plants in scientific manner. The present study is focused on taxonomic and comprehensive information of the floristic diversity and Ethnomedicinal properties of Angiospermic plants found in Kumaran kundru hill surrounded by Western Ghats. A total of 56 families, 114 genera and 126 plant species were recorded. All collected plants were preserved by using herbarium techniques. The vegetative survey conducted to the show level of species diversity, it reveals that *Ricinus communis*, and *Boerhavia erecta* have high species diversity while *Sarcostemma viminalis*, *Agave Americana* have low species diversity. Documentation of established knowledge on the Ethnomedicinal properties of these plants is essential for the conversation and new drug development process.

Keywords: identification, ethnomedicinal, species diversity, conversation

Introduction

The word Taxonomy is derived from the Greek words *taxis* (= arrangement) and *nomos* (= law), which taxonomy is the science of the description and classification of organisms, essential to the inventory of life on earth (Lincoln *et al.*, 1998; Wägele, 2005). Taxonomy, the classification of living things, has its origins in ancient Greece (with the first basic classification of Aristotle) and in its modern form dates back nearly 250 years, to when Linnaeus introduced the binomial classification still used today. Specific rules have been established for recognizing, naming and classifying species to avoid redundant descriptions or the use of the same name for more than one species (God fray, 2002). These rules were introduced in the late 19th century and are continuously monitored by international commission scientists (Disney, 2000) the discipline of taxonomy traditionally covers three areas of stages: alpha (analytically phase), beta (synthetic phase) and gamma (biological phase) taxonomy (Kapoor, 1998; Disney, 2000). Without the advent of taxonomy, nobody would be sure of the identification of organisms would be difficult (Kapoor, 1998) There would be seriously compromised and no meaningful genome projects, and medical science, for example, without taxonomy, we could not begin to understand biodiversity and the related issue of conservation (Nature, 2002). The study of taxonomy is essential in theoretical and applied biology (agriculture and forestry, biological control, public health, wild life management, mineral prospecting through the dating of rocks by their enclosed fauna and flora, national defense, environmental problems, soil fertility, commerce, etc) (Kapok, 1998).

About 1.7 million species have been named since Linnaeus and it is generally estimated that only around 10% of the world's biota has so far been described (Wilson, 2000; Disney, 2000). Obviously, taxonomy plays the major role, and its importance as basic science for the remaining sciences should be taken into consideration. However, although society has a growing need for credible taxonomic information in order to allow us to conserve, manage, understand, and enjoy the natural world, support for taxonomy and collections is failing to keep pace (Wheeler *et al.*, 2004) and passing through a world crisis (Boero, 2001).

Plants are indispensable to man for his life which have always been a common source of medicament either in the form of traditional preparations or pure active principles. The history of herbal medicine is as old as human civilization (Devgun *et al.*, 2009). According to an all India ethno biological survey carried out by the Ministry of Environment & Forest,

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Government of India, there are over 8000 species of plants being used by the people of India. While the demand for medicinal plants is growing, some of them are increasing being threatened in their natural habitat (Sharma *et al.*, 2010). The flowering plants about 315 families and 2,250 genera are occurring in different ecosystems of India, out of which 15,000 species and represent 6% of the world know flowering plants (Rao, 1997). Some of the families of flowering plants are largely distributed in India that families are Gramineae, Fabaceae, Orchidaceae, Compositae, Rubiaceae, Cyperaceae, Euphorbiaceae, Labitate, Acanthaceae and Scrophulariaceae (Rao, 1997).

The present study includes the following objectives,

- To study the floral diversity of Kumaran kundru hill
- To find out the ethnobotanical value of plants through people of Kumaran kundru hill
- To determine the distribution and population of the plants species present in the Kumaran Kundru hill.

Materials and Methods

A. Study area

Kumaran kundru hill is 31.4km from Coimbatore and 12.2km from Annur. Kumaran kundru is a place that has the blessing vibrations of enlightened souls who lived in the region in olden days. The place is situated on the south of Mettupalayam –Annur road, where people were grazing their cattle earlier. A small temple was built which grew in size to draw in huge devotee crowd. Since then, the place came to be called Kumaran kundru- The hill of Lord Moraga. The rays of sun fall on the feet of Lord Moraga in the month of April and May. The climatic conditions of Kumaran kundru hill lies between temperature 31-33°C, humidity 52% and wind 18km/h, latitude 11°1'50", longitude 11°150, altitude 372 above sea level. It is a tropical ever green forest. The sandy loam with rocky substratum soil was covered all over the place of the study area.

B. People

The people surrounded by this hill are mostly village people. Their main occupation is farming and agriculture.

C. Field Survey

The study area covers about 3.141 km. The present study was performed by 9 field surveys during the period of June to February. The oral discussion with people was mainly concentrated to the details like endemic and less known plants, vernacular names, flowering and fruiting period, medicinal and economic usage. The investigated plants were photographed and collected for the further study.

D. Herbarium Preparation

Herbarium is a collection of dried plants or specimens of plants that were systematically arranged using Bentham and hooker classification, for reference. In a herbarium, plants that could not be kept in the fresh state or preserved to serve as a reference collection for botanical comparison and research.

Procedure for making herbarium

It consist of a five part process,

- Collection
- Poisoning

- Pressing and drying
- Mounting
- Labeling

Collection

Plants chosen should be good representatives of the species and should contain all the essential features necessary for identification, i.e. leaves, stems, flowers & seeds (roots if suitably small and the plant is common and abundant).

Poisoning

Plant specimens were dipped in 40% formaldehyde to prevent it from insect or fungal attack.

Pressing and Drying

Plant specimens were pressed and dried between sheets of smooth, heavy paper.

Mounting

- After drying, the specimens were mounted on the herbarium sheets with water soluble glues.
- Loose bits of plant material such a fruit and seeds, were placed in an envelope attached to the herbarium sheet.

Labelling

A plant specimen was incomplete without label data.

E. Identification of a species

The collected plant specimens were taxonomically identified using The Flora of The Presidency of Madras, Flora of Coimbatore and An Excursion Flora of Central Tamil Nadu, India.

F. Distribution and Population of a species (Guising and Thriller, 2005)

The quadrat method of vegetation analysis were used to determine and calculate the plant distribution and population. A quadrat is a plot of 10 X 10 cm map of study area (3.141km of area) used for the study of population and distribution of a species. The study area was divided into 100 quadrates, each 1cm X 1cm. The following formulas used to determine the distribution and population of a species, Formulas:

$$\text{Distribution \%} = \frac{\text{Number of quadrates occupied by the individuals of a species}}{\text{Total number of quadrates}} \times 100$$

$$\text{Population \%} = \frac{\text{Number of individuals of a species in a quadrat}}{\text{Total number of plants in a quadrat}} \times 100$$

G. Ethnomedicinal analysis

The Ethnomedicinal uses of the specimens was obtained from people of Kumaran kundru hill and it is categorized into:

- Plant part used
- Ailment treated
- Preparation

Results

All plants are listed in table;

All plants are listed in table;

| S. No | Species name | Family name | Plant form | Part's used | Ailment treatment | Preparation |
|-------|--|-----------------|------------|------------------------|--|------------------|
| 1. | <i>A Annona squamosa L.</i> | A Annonaceae | tree | root | Tooth ache | Paste |
| 2. | <i>Polyalthia longifolia (Sonn.)</i> | A Annonaceae | tree | flower | Menstrual problem | Decoction |
| 3. | <i>Cocculus hirtus (L.)</i> | Menispermaceae | climber | leaves | Skin disease and itches | Paste |
| 4. | <i>Argemone mexicana L.</i> | Papaveraceae | herb | Stem bark | inflammation | paste |
| 5. | <i>Cleome viscosa L.</i> | Capparidaceae | herb | leaves | eczema | Paste |
| 6. | <i>Hybanthus enneaspermus L.</i> | Violaceae | herb | leaves | Chest pain | Paste |
| 7. | <i>Portulaca pilosa L.</i> | Portulacaceae | herb | leaves | Skin disease | Paste |
| 8. | <i>Sida cordifolia L</i> | Malvaceae | undershrub | root | Scorpion bite | Paste |
| 9. | <i>Sida acuta Burm.</i> | Malvaceae | undershrub | Leaves, roots | Head ache | decoction |
| 10. | <i>Abutilon indicum (L.) Sweet</i> | Malvaceae | shrub | leaves | Nervous problems | extract |
| 11. | <i>Malvastrum coromandelianum L.</i> | Malvaceae | herb | leaves | Ear ache | Juice |
| 12. | <i>Pavonia odorata Wild</i> | Malvaceae | shrub | stem | Bone fracture | powder |
| 13. | <i>Triumfetta pentandra A. Rich</i> | Tiliaceae | undershrub | leaves | Stomach pain | Paste |
| 14. | <i>Tribulus terrestris L.</i> | zygophyllaceae | herb | leaves | Kidney disorder | Juice |
| 15. | <i>Oxalis pes-caprae L.</i> | Oxalidaceae | herb | Whole plant | Induce memory | Juice |
| 16. | <i>Basella alba L.</i> | Basellaceae | herb | Leaves | Bone fracture | Juice |
| 17. | <i>Murraya koenigii (L.) Spreng</i> | Rutaceae | shrub | Leaves | Stomach disorders | paste |
| 18. | <i>Azadirachta indica A. Juss.</i> | M Meliaceae | tree | Leaves and bark | Skin disease | paste |
| 19. | <i>Ziziphus jujuba Mill.</i> | Rhamnaceae | tree | Stem and bark | earache | Juice |
| 20. | <i>Ziziphus mauritiana Mill.</i> | Rhamnaceae | tree | Stem and bark | Urinary problems | Juice |
| 21. | <i>Cissus quadrangularis L.</i> | Vitaceae | shrub | Stem | Fever, stomach ache | Juice |
| 22. | <i>Cardiospermum halicacabum L.</i> | Sapindaceae | climber | Leaves root and seeds | rheumatism and stiffness of the limbs | Paste and juice |
| 23. | <i>Phyllanthus amarus L.</i> | Phyllanthaceae | herb | leaves | Fever, cough, cold | Raw |
| 24. | <i>Phyllanthus maderaspatensis</i> | Phyllanthaceae | herb | leaves | Menstrual problem | decoction |
| 25. | <i>Securinega leucopyrus (Willd.) Mull.</i> | Phyllanthaceae | shrub | leaves | Head ache | juice |
| 26. | <i>Quisqualis indica L.</i> | Combretaceae | shrub | seed | Skin disease | Raw |
| 27. | <i>Syzygium cumini (L.) Skeels</i> | Myrtaceae | tree | leaves | swellings | Paste |
| 28. | <i>Passiflora foetida L.</i> | Passifloraceae | climber | leaves | Head ache | Juice |
| 29. | <i>Tridax procumbens (L.)</i> | Asteraceae | herb | leaves | Cuts and wounds | Juice |
| 30. | <i>Vernoniacinerea (L.) Less</i> | Asteraceae | herb | flowers | Stomach problem | Decoction |
| 31. | <i>Tithonia diversifolia (Hemsl.) A.Gray</i> | Asteraceae | shrub | leaves | diarrhoea | Paste |
| 32. | <i>Ageratum conyzoides L.</i> | Asteraceae | herb | Leaves | Pimples, diarrhoea | paste |
| 33. | <i>Acanthospermum hispidum DC.</i> | Asteraceae | herb | Whole plant | Urinary disorder | decoction |
| 34. | <i>Parthenium hysterophorus L.</i> | Asteraceae | herb | leaves | Cuts and wounds | Paste |
| 35. | <i>Vicoa indica (L.) DC.</i> | Asteraceae | herb | leaves | dysentary | Paste |
| 36. | <i>Xanthium strumarium L.</i> | Asteraceae | herb | Whole plant and leaves | Ulcers, skin disease, vomiting, asthma etc. | decoction |
| 37. | <i>Momordica charantia L.</i> | Cucurbitaceae | climber | Leaves and fruit | Relieve in the bite of bees | Raw |
| 38. | <i>Opuntia monacantha Mill.</i> | Cactaceae C | shrub | fruit | Leprosy, piles, jaundice | Juice or extract |
| 39. | <i>Mollugo cerviana L.</i> | Molluginaceae | herb | Root, leaves, fruits | Cancer, ulcer, boils | juice |
| 40. | <i>Hedyotisum bellata (L.)</i> | R Rubiaceae | herb | Whole plant | Cough | juice |
| 41. | <i>Spermacoce ocyroides Burm.</i> | R Rubiaceae | herb | Leaves, flower, stem | Chest cold, common cold, asthma | extract |
| 42. | <i>Richardia scabra L.</i> | Rubiaceae | herb | Leaves, flower | Ulcer, allergy, heal pain due to wounds | extract |
| 43. | <i>Blumea axillaris (Lam.) DC.</i> | Compositae | herb | leaves | Digestion vomiting, skin disease | paste |
| 44. | <i>Lumbago zeylanica L.</i> | Plumbaginaceae | herb | root | Infusion of roots given to person bitten by rapid dogs | paste |
| 45. | <i>Jacquinia arborea L.</i> | Theophrastaceae | Herb | seed | Astringent, aphrodisiac | Decoction |
| 46. | <i>Peristophe bicalyculata</i> | rubiceae | shrub | Leaves, stem | Rheumatism, inflammation, leprosy, diabetics | juice |

| | | | | | | |
|-----|---|----------------|------------|-------------------------|--|----------------------|
| 47. | <i>Jasminum auriculatum</i> L. | Oleaceae | climber | Leaves | Fever, ringworm, cancer, kidney disorder | decoction |
| 48. | <i>Prosopis juliflora</i> (Sw) DC. | Leguminosae | tree | Stem bark, fruits, seed | Inflammation, anti-obesity | decoction |
| 49. | <i>Albizia saman</i> (Jacq.) Merr. | Leguminosae | tree | root | Stomach disorder | Powder |
| 50. | <i>Albizia lebbek</i> (L.) Benth. | Leguminosae | tree | leaf | wound | Decoction |
| 51. | <i>Albizia amara</i> (Roxb.)B.Boivin | Leguminosae | tree | seeds | indigestion | Juice |
| 52. | <i>Bauhinia variegata</i> L. | Leguminosae | tree | leaves | eczema | Paste |
| 53. | <i>Tephrosia purpurea</i> (L.) Pers | Leguminosae | shrub | Whole plant | Ulcers of lips and pimples | Paste |
| 54. | <i>Pseuderthria viscida</i> (L.)Wight & Arn | Leguminosae | shrub | Whole plant | reduces blood pressure and reduces body pain | juice |
| 55. | <i>Tamarindus indica</i> L. | Leguminosae | tree | Whole plant | Increases male fertility | Extract |
| 56. | <i>Cassia absus</i> L | Leguminosae | herb | tubers | abortifacient | Paste |
| 57. | <i>Clitoria ternatea</i> L. | Leguminosae | herb | leaves | Heal infections | Paste |
| 58. | <i>Dichrostachys cinerea</i> (L.) Wight & Arn. | Leguminosae | tree | Whole plant | paralysis | Paste |
| 59. | <i>Indigofera tinctoria</i> L. | Leguminosae | herb | leaves | Allergic, ear infection | juice |
| 60. | <i>Mimosa pudica</i> L. | Leguminosae | undershrub | root | impotence | Powder |
| 61. | <i>Crotalaria verrucosa</i> L. | Leguminosae | herb | Leaves | Ulceration of mouth | paste |
| 62. | <i>Leucaena leucocephala</i> (Lam.) de Wit | Leguminosae | shrub | Whole plant | gingivitis | powder |
| 63. | <i>Acacia holo sericea</i> Wild. | Leguminosae | shrub | Root | Digestive problem | Paste |
| 64. | <i>Muntingia calabura</i> L. | Muntingiaceae | shrub | Whole plant | Abdominal pain, burns | Extract or paste |
| 65. | <i>Cascabelathevetia</i> L. | Apocynaceae | tree | leaves and bark | amenorrhea | Extract |
| 66. | <i>Wrightia tinctoria</i> R.Br | Apocynaceae | tree | leaves and bark | astringents, antihelminthics, aphr odisiacs | juice |
| 67. | <i>Calotropis procera</i> (Willd.) Dry and.Ex W. Ait. | Asclepiadaceae | shrub | lartex | abortifacient | paste |
| 68. | <i>Sarcostemma viminalale</i> (L.) R. Br. | Asclepiadaceae | Climber | Whole plant | digestive disorders | extract |
| 69. | <i>Trichodesma indicum</i> (L.) Lehm. | Boraginaceae | herb | leaves | cancer | extract |
| 70. | <i>Ipomoea obscura</i> (L.) Ker Gawl. | Convolvulaceae | herb | leaves | ulcers | powder |
| 71. | <i>Ipomoea cairica</i> (L.) Sweet | Convolvulaceae | herb | leaves | diseases of eye | paste |
| 72. | <i>Ipomoea purpurea</i> (L.) Roth. | Convolvulaceae | Climber | seed | anthelmintic, diuretic | extract |
| 73. | <i>Evolvulus alsinoides</i> (L.) | Convolvulaceae | herb | whole plant | dysentery | paste |
| 74. | <i>Datura metel</i> L. | Solanaceae | shrub | whole plant | skin-diseases, ulcers, bronchitis | juice |
| 75. | <i>Solanum nigrum</i> L. | Solanaceae | herb | Root | skin diseases | juice |
| 76. | <i>Solanum torvum</i> Sw. | Solanaceae | shrub | whole plant | swellings, angina pectoris, cough, piles | paste |
| 77. | <i>Solanum virginianum</i> L. | Solanaceae | shrub | seed | asthma | juice |
| 78. | <i>Tecoma stans</i> (L.) Juss. Ex Kunth. | Bignoniaceae | shrub | Root | diuretic, tonic, anti-syphilitic and vermifuge | Paste or extract |
| 79. | <i>Millingtonia hortensis</i> L | Bignoniaceae | tree | flower | asthma, sinusitis, cholagogue and tonic | Powder form |
| 80. | <i>Sesamum indicum</i> L. | Pedaliaceae | herb | whole plant | diarrhoea and other intestinal disorders | paste |
| 81. | <i>Sesamum alatum</i> Thonn | Pedaliaceae | herb | seed | piles | juice |
| 82. | <i>Pedaliium murex</i> L. | Pedaliaceae | herb | whole plant | biles | paste |
| 83. | <i>Martynia annua</i> L. | martyniaceae | herb | leaves | sore throat | juice |
| 84. | <i>Caesalpinia pulcherrima</i> (L.)Sw | Caesalpinaceae | tree | whole plant | urinary bladder and kidney problems | Paste or powder |
| 85. | <i>Ruellia patula</i> L. | Acanthaceae | herb | whole plant | gonorrhea, syphilis, eye sore, renal infection, cough, wounds, scalds, toothache, stomach-ache and kidney stones | juice |
| 86. | <i>Justicia tranquebariensis</i> Roxb. | Acanthaceae | shrub | leaves | chest diseases, tuberculosis | Powder |
| 87. | <i>Asystasia gangetica</i> (L.) T. Anderson | Acanthaceae | herb | whole plant | swellings, angina pectoris, cough, piles | juice |
| 88. | <i>Barleria acuminata</i> Nees. | Acanthaceae | shrub | whole plant | whooping cough, inflammations, glandular swellings, urinary | Powder or extract or |

| | | | | | | |
|-----|--|----------------|---------|-----------------|---|---------------------------|
| | | | | | infection, jaundice, fever, gastrointestinal disorders and as diuretic and tonic | paste form |
| 89. | <i>Peristrophe bicalyculata</i> (Retz) Nees. | Acanthaceae | herb | leaves | fever, dyspepsia, swellings and bronchitis | Decoction |
| 90. | <i>Priva cordifolia</i> (L.f.) Druce. | Verbinaceae | herb | whole plant | healing wounds, anti-fertility, treat migraines, cure ulcers and diarrhea | Decoction |
| 91. | <i>Lantana camara</i> L. | Verbinaceae | shrub | whole plant | tetanus, malaria and rheumatism | Decoction |
| 92. | <i>Gloriosa superba</i> L. | Colchiaceae | climber | whole plant | ,chronic ulcers, piles, gonorrhoea, gout, infertility, wounds, arthritis, cholera, kidney problems, typhus, itching, leprosy, cancer | Raw or paste or decoction |
| 93. | <i>Leucas aspera</i> (Willd.) Link. | Lamiaceae | herb | leaves | chronic skin eruptions and painful swellings | juice |
| 94. | <i>Ocimum sanctum</i> L | Lamiaceae | herb | leaves | diaphoretic, anti-periodic, stimulating and expectorant properties | juice |
| 95. | <i>Ocimum filamentous</i> Forssk. | Lamiaceae | herb | root | diaphoretic in malarial fevers | paste |
| 96. | <i>Anisomeles malabarica</i> (L.) R.Br. ex Sims. | Lamiaceae | herb | whole plant | astringent, carminative, febrifuge and tonic | juice |
| 97. | <i>Stemodia viscosa</i> Roxb. | Plantaginaceae | herb | leaves | fever, skin diseases, wound healing, asthma | extract |
| 98. | <i>Boerhavia diffusa</i> L. | Nyctaginaceae | herb | Leaves and root | eye wounds, muscular pain and purify the blood | extract |
| 99. | <i>Boerhavia erecta</i> L. | Nyctaginaceae | herb | Leaves | stomachic, cardi tonic, hepatoprotective, laxative, anthelmintic | paste |
| 100 | <i>Alternanthera sessilis</i> (L.) R.Br. ex DC. | Amaranthaceae | herb | Leaves | blotches | paste |
| 101 | <i>Amaranthus spinosus</i> L. | Amaranthaceae | herb | root | bronchitis, asthma and skin - diseases | paste |
| 102 | <i>Achyranthes aspera</i> L. | Amaranthaceae | herb | whole plant | cough | extract |
| 103 | <i>Aerva javanica</i> (Burm.f.) Juss. ExSchult. | Amaranthaceae | shrub | leaves | fever, skin diseases, wound healing, asthma | paste |
| 104 | <i>Aerva lanata</i> (L.) Juss. | Amaranthaceae | herb | whole plant | diuretic and demulcent properties | juice |
| 105 | <i>Celosia argentea</i> L. | Amaranthaceae | herb | Flower | diarrhoea | Extract or paste |
| 106 | <i>Gomphrena globosa</i> L. | Amaranthaceae | herb | roots | coughs | juice |
| 107 | <i>Gomphrena celosioides</i> Mart. | Amaranthaceae | herb | leaves | Gastrointestinal, respiratory problems, skin infections | Decoction |
| 108 | <i>Laurus nobilis</i> L. | Lauraceae | tree | whole plant | antiseptic, aromatic, astringent, carminative, diaphoretic, digestive, diuretic, emetic in large doses, narcotic, parasiticide, stimulant | Raw or paste or decoction |
| 109 | <i>Croton bonplandianum</i> Baill. | Euphorbiaceae | herb | Whole plant | antifungal, antimicrobial, antidiabetic, antitumor, anticancer, acute constipation, abdominal dropsy | |
| 110 | <i>Euphorbia hirta</i> L. | Euphorbiaceae | herb | leaves | <i>dysentery</i> , intestinal, <i>asthma</i> , <i>bronchitis</i> , fever, cough, <i>asthma</i> , bronchial infections, bowel complaints, helminthic infestations, wounds, kidney stones | decoction |
| 111 | <i>Euphorbia heterophylla</i> .L | Euphorbiaceae | herb | lartex | stomach-ache and constipation, and to expel intestinal worms | decoction |
| 112 | <i>Jatropha gossypifolia</i> L. | Euphorbiaceae | shrub | fruit | stomach ache | juice |
| 113 | <i>Ricinus communis</i> L. | Euphorbiaceae | shrub | leaves | headache and heat stroke | paste |
| 114 | <i>Acalypha indica</i> L. | Euphorbiaceae | herb | Leaves and root | bronchitis, pneumonia and asthma | paste |
| 115 | <i>Holoptelea integrifolia</i> Planch. | Ulmaceae | tree | Bark and seed | rheumatism, ringworm, scabies, ulcers and scorpion stings | paste |
| 116 | <i>Ficus benghalensis</i> L. | Moraceae | tree | Bark and seed | Used as a tonic to maintain body temperature and treat diabetes | Juice or decoction |
| 117 | <i>Ficus religiosa</i> L. | Moraceae | tree | Bark and seed | ulcers and skin diseases | extract |
| 118 | <i>Commelina benghalensis</i> L. | Commelinaceae | herb | Whole plant | leprosy | Paste or |

| | | | | | | |
|-----|---|-------------|-------|-------------|---|----------------|
| | | | | | | juice |
| 119 | <i>Cyperus compactus</i> Retz. | Cyperaceae | grass | Whole plant | rheumatism and to regulate menstruation | Paste or juice |
| 120 | <i>Kyllinga triceps</i> . Rottb | Cyperaceae | grass | Whole plant | anti-venom property | juice |
| 121 | <i>Cenchrus pedicellatus</i> L. | Graminaceae | herb | Whole plant | milk production | juice |
| 122 | <i>Panicum virgatum</i> L. | Poaceae | grass | Whole plant | febrifuge, stimulant, stomachic and tonic | Paste |
| 123 | <i>Melinis repens</i> Willd. | Poaceae | grass | Whole plant | stimulant, sudorific, stomachic and refrigerant | extract |
| 124 | <i>Cynodon dactylon</i> (L.) Pers | Poaceae | herb | Whole plant | anti-venom property | Paste |
| 125 | <i>Chloris barbata</i> Sw. | Poaceae | herb | leaves | fever, diarrhea and diabetes | extract |
| 126 | <i>Arundinella pumila</i> (Hochst. ex A.Rich.) Steud. | Poaceae | herb | leaves | gonorrhoea, and for other Genital infections | juice |

Vegetative Analysis

This analysis conducted for 100 plants and results are listed in the table

| S. No | Species name | Density% | Frequency% |
|-------|------------------------------------|----------|------------|
| 1. | <i>Indigofera tinctoria</i> | 18 | 11 |
| 2. | <i>Tribulus terrestris</i> | 19 | 10 |
| 3. | <i>Vernonia cinerea</i> | 12 | 11 |
| 4. | <i>Laurus nobilis</i> | 10 | 4 |
| 5. | <i>Lantana camera</i> | 3 | 4 |
| 6. | <i>Ocimum sanctum</i> | 9 | 13 |
| 7. | <i>Leucas aspera</i> | 9 | 9 |
| 8. | <i>Portulaca pilosa</i> | 6 | 5 |
| 9. | <i>Ricinus communis</i> | 15 | 19 |
| 10. | <i>Datura metal</i> | 2 | 3 |
| 11. | <i>Tridax procumbens</i> | 9 | 6 |
| 12. | <i>Calotropis procera</i> | 8 | 2 |
| 13. | <i>Chrysopogan aciculatus</i> | 6 | 5 |
| 14. | <i>Boerhaavia erecta</i> | 25 | 15 |
| 15. | <i>Ziziphus mauritiana</i> | 6 | 15 |
| 16. | <i>Millingtonia hortensis</i> | 2 | 5 |
| 17. | <i>Solanum torvum</i> | 1 | 2 |
| 18. | <i>Solanum nigrum</i> | 2 | 3 |
| 19. | <i>Tithonia diversifolia</i> | 2 | 4 |
| 20. | <i>Gomphrena globosa</i> | 4 | 6 |
| 21. | <i>Sarcostemma viminalis</i> | 1 | 1 |
| 22. | <i>Haloptelea integrifolia</i> | 5 | 7 |
| 23. | <i>Basella alba</i> | 1 | 3 |
| 24. | <i>Agave americana</i> | 1 | 1 |
| 25. | <i>Barleria acuminata</i> | 2 | 5 |
| 26. | <i>Asystasia gangetica</i> | 3 | 3 |
| 27. | <i>Murraya koenigii</i> | 2 | 3 |
| 28. | <i>Mollugo cerviana</i> | 3 | 3 |
| 29. | <i>Melinia repens</i> | 6 | 4 |
| 30. | <i>Acanthospermum hispidum</i> | 2 | 1 |
| 31. | <i>Bauhinia variegata</i> | 5 | 9 |
| 32. | <i>Kyllinga triceps</i> | 1 | 6 |
| 33. | <i>Stemodia viscosa</i> | 4 | 5 |
| 34. | <i>Sida cordifolia</i> | 5 | 4 |
| 35. | <i>Malvastrum coromandelium</i> | 8 | 7 |
| 36. | <i>Terminaria indica</i> | 9 | 8 |
| 37. | <i>Ageratum conyzoides</i> | 2 | 4 |
| 38. | <i>Solanum virginianum</i> | 12 | 6 |
| 39. | <i>Zizyphus jujuba</i> | 5 | 3 |
| 40. | <i>Polyalthia longifolia</i> | 8 | 2 |
| 41. | <i>Albizia amara</i> | 9 | 1 |
| 42. | <i>Cyperus compactus</i> | 7 | 4 |
| 43. | <i>Jucquinia arborea</i> | 7 | 7 |
| 44. | <i>Cassia absus</i> | 11 | 5 |
| 45. | <i>Phyllanthus amarus</i> | 5 | 4 |
| 46. | <i>Phyllanthus maderaspatensis</i> | 9 | 1 |
| 47. | <i>Blumea axillaxis</i> | 7 | 5 |
| 48. | <i>Priva cordifolia</i> | 4 | 10 |
| 49. | <i>Sida acuta</i> | 13 | 11 |
| 50. | <i>Aerva lanata</i> | 4 | 4 |
| 51. | <i>Aerva javanica</i> | 8 | 8 |

| | | | |
|------|----------------------------------|----|----|
| 52. | <i>Achryanthes aspera</i> | 9 | 9 |
| 53. | <i>Celosia argentea</i> | 3 | 6 |
| 54. | <i>Gomphrena celosiodes</i> | 7 | 4 |
| 55. | <i>Amaranthus spinosus</i> | 6 | 10 |
| 56. | <i>Alternanthera sessilis</i> | 4 | 11 |
| 57. | <i>Cardiospermum helicacabum</i> | 7 | 4 |
| 58. | <i>Borreria ocymoides</i> | 5 | 8 |
| 59. | <i>Achryanthes aspra</i> | 8 | 4 |
| 60. | <i>Ficus benghalensis</i> | 7 | 6 |
| 61. | <i>Gyandropsis pentaphylla</i> | 4 | 3 |
| 62. | <i>Ficus religiosa</i> | 7 | 9 |
| 63. | <i>Vicoa indica</i> | 13 | 7 |
| 64. | <i>Albizia lebbeck</i> | 14 | 1 |
| 65. | <i>Securinega leucopyrum</i> | 10 | 4 |
| 66. | <i>Acacia holosericea</i> | 9 | 6 |
| 67. | <i>Cocculus hirtus</i> | 8 | 11 |
| 68. | <i>Mimosa pudica</i> | 4 | 1 |
| 69. | <i>Justicia tranquebariensis</i> | 6 | 7 |
| 70. | <i>Arundinella pumila</i> | 2 | 5 |
| 71. | <i>Richardia scabra</i> | 4 | 6 |
| 72. | <i>Syzygium cumini</i> | 7 | 9 |
| 73. | <i>Chloris barbata</i> | 8 | 2 |
| 74. | <i>Crotalaria verucossa</i> | 10 | 8 |
| 75. | <i>Anisomeles malabrica</i> | 11 | 3 |
| 76. | <i>Wrightia tinctoria</i> | 7 | 4 |
| 77. | <i>Prosopis julieflora</i> | 9 | 9 |
| 78. | <i>Quisqualis indica</i> | 10 | 6 |
| 79. | <i>Opuntia monacantha</i> | 11 | 3 |
| 80. | <i>Tephrosia purpurea</i> | 4 | 12 |
| 81. | <i>Muntingia calabura</i> | 7 | 11 |
| 82. | <i>Momordica charantia</i> | 5 | 10 |
| 83. | <i>Albizia saman</i> | 7 | 3 |
| 84. | <i>Leucaena leucophala</i> | 9 | 5 |
| 85. | <i>Pseudarthria viscida</i> | 3 | 8 |
| 86. | <i>Clitoria ternatea</i> | 6 | 6 |
| 87. | <i>Dichrstachys cinera</i> | 10 | 7 |
| 88. | <i>Abutilon indicum</i> | 5 | 4 |
| 89. | <i>Pavonia odorata</i> | 6 | 1 |
| 90. | <i>Triumfetta pentandra</i> | 2 | 2 |
| 91. | <i>Evolvulus alsinoides</i> | 3 | 6 |
| 92. | <i>Ipomea obsura</i> | 1 | 7 |
| 93. | <i>Panicum virgatum</i> | 7 | 8 |
| 94. | <i>Ipomea cairica</i> | 9 | 9 |
| 95. | <i>Chrysogen aciculatum</i> | 4 | 4 |
| 96. | <i>Ipomea purpurea</i> | 5 | 7 |
| 97. | <i>Ocimum filamentosum</i> | 9 | 8 |
| 98. | <i>Plumbago zeylanica</i> | 3 | 12 |
| 99. | <i>Jasminum grandiflorum</i> | 2 | 1 |
| 100. | <i>Millingtonia hortensis</i> | 10 | 2 |

Discussion

A. Taxonomical study

The collected plants are belongs 56 families, 113 genera and 126 species. Dominant families in the study area are Leguminosae (15 genera, 17 species), Euphorbiaceae (6 genera, 6 species), Acanthaceae (5 genera, 5species) Malvaceae (5 genera, 5 species), Amaranthaceae (6 genera, 8 species), Poaceae (6genera, 6 species), and Asteraceae (8 genera, 8 species)

Solanaceae (2 genera, 4 species), Annonaceae (2 genera, 2 species), Labiatae (3genera, 4 species)), Liliaceae (3 species), Pedaliaceae (2 genera,3 species), Moraceae (2 species), Rhamnaceae (1 genera, 2 species), Rubiaceae (3 species), Sapindaceae (3 species), Tiliaceae (3 species), Verbinaceae (2 genera, 2 species) Convolvulaceae (2 genera, 4 species), Apocynaceae (3 genera, 3species), Boraginaceae (2 species), Compositae (3 genera, 3 species), Phyllanthaceae (2genera, 3 species), Nyctaginaceae(2 species) Cyperaceae (2 genera, 2

species) Bignoniaceae (2 genera, 2 species)are moderately present in Kumaran Kundru hill.

As for us our studies the following families are present in low numbers of species namely Sapindaceae(1 species),Lauraceae (1 species), Theophrastaceae(1 species), Molluginaceae (1 species) Cactaceae(1 species), Basellaceae (1 species), Papavaraceae (1 species), Graminaceae (1 species), Muntinginaceae(1 species) Commelinaceae (1 species), Tiliaceae (1 species), Rutaceae (1 species), Menispermaceae (1 species), Oleaceae (1 species), Ulmaceae (1 species), Violaceae (1 species), Vitaceae (1 species) Mytraceae (1 species), Combretaceae (1 species) Boraginaceae (1 species), Cucurbitaceae (1 species), Meliaceae (1 species), Capparidaceae (1 species), Passifloraceae (1 species), Oxalidaceae (1 species), Colchinaceae (1 species), Martyniaceae (1 species), Portulacaceae (1 species), Zygophyllaceae (1 species), Plumbaginaceae (1 species), Asparagaceae (1 species), Plantaginaceae (1 species).

B. Ethno botanical study

There are 126 species used for medicinal purposes by the people of Kumaran kundru hill. Some are *Evolvulus alsinoides* used as brain tonic agent. *Trichodesma indicum*, *Barleria acuminata* are used for fever. *Trichodesma indicum* are used cure dysentery. Bone fracture was cured by *Cissus quadrangularis*, *Ficus religiosa*. *Xanthium strumarium* is used to treat cancer. Stomach disorders cured by the plants namely *Cocculus hirtus*, *Borreria ocymoides*. Ear ache was cured by *Jatropha gossypiflora*. The following plants used as anti-inflammatory agents *Albizia amara*, *Peristrophe bicalyculata*, *Tamaridus indicia* and *Malvastrum coromandelium* used to cure the snake bite.

C. Vegetative analysis

The following plants have a great distribution percentage namely, *Indigofera tinctoria* (70%), *Tribulus terresteris* (65%), *Laurus nobilis* (60%), *Stemodia viscosa*, *Albizia lebbek* (55%), *Solanum virginanum* (50%), *Sida acuta* (50%), *Cassia absus* (43%), *Vicoa indica* (38%), *Securinega leucopyrum* (35%), *Acacia holosericea* (33%), *Dichrostachys cinerea* (31%), *Crotalaria verucossa* (24%), *Prosopis julieflora* (23%) and *Abutilon indicum* (22%).

The following plants have a great population percentage namely *Ziziphus mauritiana* (36%), *Ocimum sanctum* (28%), *Indigofera tinctoria* (22%), *Malvastrum coromandelium* (7.2%), *Priva cordifolia* (7.2%), *Amaranthus spinosus* (6.4%) and *Alternanthera sessilis* (6%).

Conclusion

In our study, the vegetation analysis of Kumaran kundru hill was discussed, the study revealed that Leguminosae (15 genera, 17 species) was the dominant family present in the study area. *Ricinus communis* and *Boerhavia erecta* have the highest population and distribution percentage respectively. There are 126 plants recorded as used for medicinal purposes, 5 plant mentioned as edible, 3 plants reported as ornamental

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