Importance of herbaria for the conservation of medicinal plants of Raichur district, Karnataka

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ABSTRACT: *The herbaria play an important role in the conservation of medicinal plants by providing a permanent, verifiable record of their viability, distribution, Characteristic features and climate change. The herbaria data helps to track the reposition in plant distribution over time due to climate change. Itis vital for morphology, taxonomy, research, monitoring and developing effective conservation strategies like establishing medicinal plants conservation areas and also act as an essential library of life. Based on the comparison of the previous and current data if the plant scientists identify any decline in the plant populations in that condition they can enable certain targeted management methods such as habitat restoration or assisted migration. It act as a physical record which can provide an irreplaceable data and resources for understanding, protecting and sustainable managing medicinal plant biodiversity for the future generations. These are completely dried, pressed, mounted and preserved specimens with detailed labels. The herbaria index includes Botanical name, Vernacular name, Family, Location, Latitude, Longitude, field note of the specimens, collectors name and date of collection. It also serves as a very good genetic resource for rediscovery, restoration and cohesion of the traditional knowledge with the current science and protects the medicinal plants from its degeneration. In the present study there are twenty two medicinal plants specimens collected from Raichur district and prepared the herbaria and arranged according to their respective family alphabetical order and deposited in the herbarium cabinet in the Department of Botany, Laxmi Venkatesh Desai College Raichur.*

KEY WORDS: *Medicinal plants, Herbaria, Conservation, Traditional knowledge, Herbaria Cabinet*

I. INTRODUCTION

Herbaria and Botanical knowledge play an important role in conservation of medicinal plants especially in the areas of ethnobotany, folk medicine and ethnopharmacological research. It depends upon three closely combine expertises namely inventories, identification and documentation. It is very much important to identify correctly otherwise it will lose the sense of inventories. In addition, proper documentation is necessary for correct identification. A herbarium is a collection of dried plant specimens kept as a reference standard for future scientific studies. It serves as a elementary need of identification for basic and applied research in Botany, Genetics, Agriculture, Pharmacognosy and Biotechnology [1]. Luca Ghini the sole initiator of the art of herbarium making and this art was disseminated over Europe by his student. Gherardo Cibo, began collecting and preserving specimens as early as 1532[2]. The herbarium belonging to Sir Joseph Banks, at his house in central London (1525–1621) comprised of 170 specimen volume collected by the herbalist Ferrante Imperato[3]. The Naturkunde museum im Ottoneum Kassel, Germany (1569) and at the Universities of Bologna (1570), Basel (1588) and Oxford (1621) are considered as the earliest herbaria[4]. These all specimens were in the form of pressed plants mounted on sheets of paper,

which were bound into books. Binding specimens into books remained standard practice until the herbarium of Sir Hans Sloane (1660–1753) and Increasingly herbaria were housed in institutions rather than the homes of wealthy collectors such as Sloane and Sir Joseph Banks [3]. Herbarium contains voucher specimens of dried and pressed and mounted plants in the form of sheets to compare unknown newly collected plants. Voucher specimen provides a permanent record for a species occurring at a particular time and place and form the basis of reliable distribution, habit and habitat information, act as the reference point for the application of the scientific names and vernacular names. Based on the herbaria information the conservation of traditional knowledge data collected from indigenous peoples play the useful therapeutic agents and explore their toxic potential to form a base for the discovery of herbal drugs. It provide the basic biological material for taxonomists, ecologists and Seed collectors and also serve in the cases of toxicological and biochemical analysis[5]. Keeping this point in view the present study carried out the importance of herbaria for the conservation of medicinal plants of Raichur district, Karnataka (Figure-1).

Figure-1: Map of Raichur, Karnataka State , India

II. MATERIALS AND METHODS

Regularly visited different parts of Raichur district in different seasons and collected plants growing in the study area. The collected angiosperm plants transfer to the blotting paper and carried to the laboratory. All the plants are identified by using the flora such as “Flora of Gulbarga District” written by Seetharam et al, 2000 [6], “Flora of presidency of Madras” written by Gamble’s 1915-1935 [7] and “Flora of Karnataka” written by Saldhana et al, 1988 [8] and prepared the herbaria. These herbaria have been deposited in the department of Botany, Laxmi Venkatesh Desai College Raichur for further reference.

III. RESULTS AND DISCUSSION

About 22 plant species under 22 genera belonging to different 15 families of herbaria have been prepared and the medicinal plant species collected from different parts of Raichur district and are arranged with their family alphabetically order (Table:1, Figure-2 and 3, Plate-1).

Table 1:Enumeration of herbaria for conservation of medicinal plants of Raichur district, Karnataka

Sl. No	Botanical name	Vernacular name	Family	Location	Habit
1	*Azardichta indica* L.	Neem	Meliaceae	Siddrampur Road	Tree
2	*Solanum xanthocarpum* Schrad&Wendl	Thorny Nightshade	Solanaceae	Siddrampur Road	Herb
3	*Indigofera hirsute* L.	Hairy indigo	Papilionaceae	Bollamdoddi Road	Herb
4	*Calotropis gigantea* L.R.Br.	Giant milk weed	Asclepidaceae	Manik Prabhu temple road	Shrub
5	*Eleusine aegyptica* (L.) Delf	Crow foot grass	Poaceae	LVD college Campus	Herb
6	*Ixora coccinia* L.	Jungle geranium	Rubiaceae	LVD college Campus	Shrub
7	*Tridax procumbens* L.	Coat Buttons	Asteraceae	Near Navodaya medical college	Herb
8	*Alternanthera sessilis* (L.) R.Br.ex A.P.Dc	Stalkless Joyweed	Lamiaceae	Near Govt Polytechnic college Raichur	Herb
9	*Leucas aspera* (Willd)Link	Leucas	Lamiaceae	Bijjangera Road	Herb
10	*Celosia argentea* L.	Cocks comb	Amaranthaceae	Maliyabad	Herb
11	*Ricinus communis* L.	Castor	Euphorbiaceae	Near Railway station Raichur	Shrub
12	*Cassia auriculata* L.	Tanner's Cassia	Caesalpinaceae	Siddrampur Road	Shrub
13	*Lablab purpurens* (L.) Sweet	Lablab bean	Papilionaceae	Bollamdoddi Road	Climber
14	*Tribulus terrestris* L.	Puncture vine	Zygophyllaceae	LVD college Campus	Creeper
15	*Gomphrena serrata* L.	Prostrate globe	Amaranthaceae	Kolanki	Herb
16	*Achyranthus aspera* L.	Devils Horse whip	Amaranthaceae	Manik prabhu temple Road	Herb
17	*Tephrosia purpurea* (L.) Pers	Wild indigo	Papilionaceae	Near Navodaya Medical college	Herb
18	*Catharanthus roseus* (L.)G.Don	Rose periwinkle	Apocynaceae	Near Navodaya Medical colleh	Herb
19	*Cleome viscose* L.	Yellow spider flower	Capparaceae	Tuntapur Road	Herb
20	*Peltophorum pterocarpum* (L.) Baeker ex K.Heyne	Yellow flame tree	Caesalpinaceae	LVD College campus	Tree
21	*Cajanus cajan* (L.)	Pigeon pea	Papilionaceae	Saidapur Road	Herb
22	*Aegle marmelos* (L.) Corr	Wood apple	Rutaceae	LVD College Campus	Tree

Figure-2: Distribution of number of individuals of species in a family

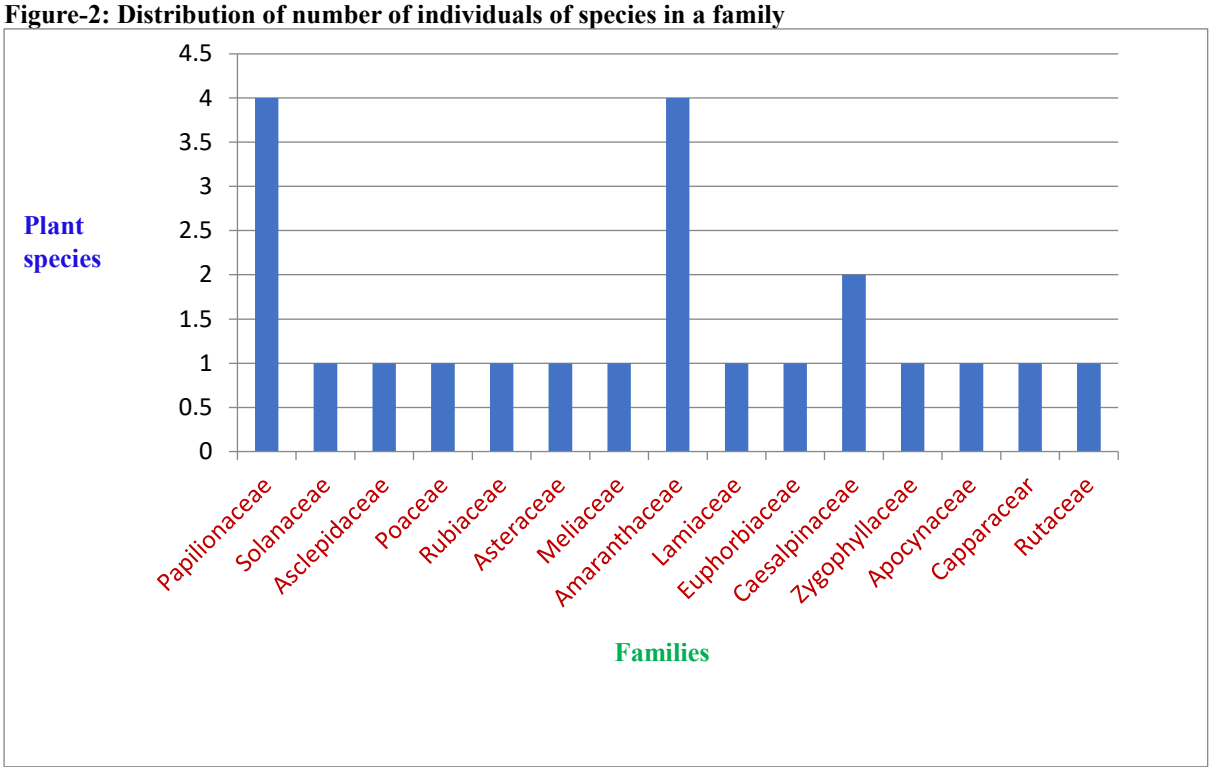

Figure-3:Life forms of individual plant species

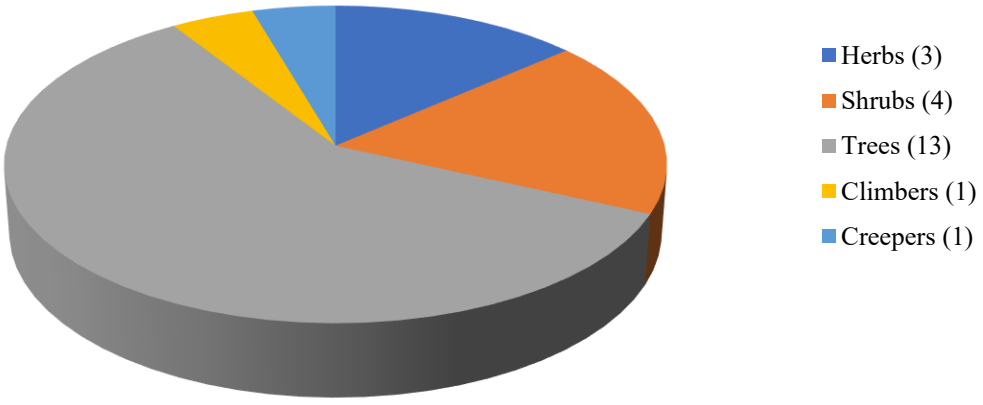

Plate-1: herbaria for conservation of medicinal plants of Raichur district, Karnataka

It is obvious from the present survey that 22 medicinal plant species under 22 genera belong to 15 families occurs in the different parts of Raichur district, Karnataka. The different forms of plant species namely herbs are represented by 12 species, Shrubs by 04 species, Climbers by 01 species, Creepers by 01 species and trees by 03 species. Herbs and shrubs have been observed growing in normal shape and size throughout all seasons except during summer, but the tree species are in extremely under developed condition. Among the total families the Amaranthaceae and Papilionaceae members are dominant followed by Caesalpinaceae. The herbaria reveals the diversity of medicinal plants species in the Raichur district and play an important role to conserve the medicinal plants and to improve the existing flora of the district.

IV. CONCLUSION

Herbarium should be well equipped for naming and keeping the voucher specimen for a long period of time. Well maintained herbarium with frequent toxication make them safe against physical and mechanical damage. Sufficient floras and literatures must be available to help taxonomist for naming the specimen belongs to unfamiliar families. It also acts as a warehouse of information for the evolutionary history of plants, mapping of current and past ecological and geographic distribution of plants. It help to understand existing and changing nature of plant communities and their habitats. In addition to Identification, classification and naming of plants it provides information on distribution of rare and endangered species.

Herbaria and any collected medicinal knowledge from local traditional healers makes the investigation of plants against the targeted disease very easy which can help to find out bio active substances rather than random collections. To update the generic name and sometimes the specific epithet when it is will changed. For an instance the citrus fruit (lime) was known as *Limonia aurantiifolia* Christm up to 1913, when Swingle placed it in the genus Citrus, since then it has been known as *Citrus aurantiifolia* Swingle.

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