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Potential Aromatic Plants in Khandesh Region of Maharashtra (India): A Census

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Abstract: The present communication sheds light on the availability and potentiality of aromatic plants in Khandesh region of Maharashtra (India). A total of 75 angiospermic species belonging to 61 genera and 34 families have been found potential aromatic plants. Tree and herbaceous species constitute a major segment of aromatic flora in the region. Of these, 27 species are exotic, either naturalized or found under cultivation for various purposes. Totally, 57 species are being cultivated. Flowers appear major source organ. Entirely aromatic plants are only six, whereas bark, wood and gum are represented by one species each. This inventory will help for further scientific research on aromatic plants in view of essential oil context.
Keywords: Aromatic Plants, Khandesh, Maharashtra

INTRODUCTION

Aromatic plants, since antiquity, have been employed to flavour food and drinks, to impart fragrance to human body, to beautify homes, for religious rites and personal adornment, in cosmetics and medicine, as incense and insect repellent, etc. It is hard to imagine human life in their absence. Their demand is ever-increasing. In recent time, natural sources are being flavoured more than the synthetic ones. There is global interest in aromatic plants being economically valued. Our country is biodiversity-rich but we must be aware about its potentiality. Regional inventories on this line will help to meet our daily needs and also to industry relating food, medicine, cosmetics, incense, etc.

Some aromatic Indian plant species find place in trade but still there is a wide scope for others. It is, therefore, pre-requisite to have a complete inventory. The present communication is thus aimed at fulfilling this gap. Concerted and planned efforts towards utilization of their resources will bring down imports and boost the exports of many of essential oils present in aromatic taxa. The senior author (DAP) has already documented angiospermic diversity in Khandesh region [1, 2]. This endeavor will make people aware of the potential and status of aromatic plants in this region. Information on the plants of this area is freely borrowed from past literature [3-10]. Occurrence of aromatic species with their botanical name, family, common name, habit, status regarding wild or cultivated nature, exotic or indigenous nature, precise aromatic plant part and specific uses as noted in past published literature are presented in Table-I

RESULTS AND DISCUSSION

Aromatic natures of plants are usually due to the presence of essential oils or offer their solidification as resins or gums. They are generally considered to be by-products of plant metabolism. They probably act as attractants for certain pollinating insects or feeding animals. They may be even defensive. They occur in various organs of a plant or even in entire plant body. Their composition and quality depend upon climate, time of harvesting and procedure of extraction. They are also called ethereal oils. They are volatile in nature, do not become rancid or do not leave a greasy stain.

Man has selected, cultivated and utilized various aromatic plants. In India, they are featured in personal adornment and beautification. Ladies wear flowers of Champak (*Michelia champaca)* and Jasmines (*Jasminum* species) in their hair. Use of sandal paste (*Santalum album*) and turmeric (*Curcuma longa*) find place in religious worship. Indian perfumery industry has a long tradition. Perfumery has been one of the Indian arts. India was a famous centre for perfumes. Offering perfumes or aromatic plant parts to gods in 'Yagnas' is also mentioned in Vedas. Grounded pinewood fragments (*Pinus roxburghii*) were offered to Agni (Fire) so that the environmental was filled with fragrance. Use of sandalwood (*Santalum album*) and Salai (*Boswelia serrata*) are found during archaeological investigation belonging to Harrapan period and Iron age respectively [11]. Information on the area and production of commercially imported aromatic plants is authentically documented for Indian region. However, their region-wise status is not

generally on record. During biodiversity studies, botanists have mentioned their occurrence in particular areas but not as exclusive topic of research. Their general notations or remarks do not adequately serve the purpose. Present authors, therefore critically examined flora of Khandesh region with particular emphasis on the status and potentiality of aromatic plants. This inventory revealed as many as 75 aromatic angiospermic species belonging to 61 genera and 34 families. Of these, 29 taxa are tree species, whereas others are herbs (26 species) and shrubby species (17). Out of 75 species, 27 species are exotic to India, naturalized or cultivated for various economic purposes. Out of total 75 species, 57 species are found under cultivation. Few species are both wild as well as cultivated e.g. *Aegle marmelos*, *Azadirachta indica*, *Ocimum tenuiflorum* and *Tectona grandis*.

The tabulated information indicates that majority of aromatic plant parts belong to flower (50 species). Other aromatic plant parts are: leaves (06 species), underground parts (04 species), fruits (04 species), seeds (02 species) bark, wood and gum (one species each). All parts of entire plants are aromatic in case of only six species.

It is to be noted that there are very few species which are exploited commercially in our country. Many species have potential for commercial purpose, but they appear to have overlooked. There is also some species worth to noticing as aromatic plants. They are recorded in various floras published. In future, these should be also brought under experimental studies. Certainly, they will add potentiality of aromatic plants occurring in Indian region.

Table: Aromatic Plants of Khandesh

Sr.No.	Plant Name and Family	Common Name	Habit	Wild/ Cultivated	Exotic/ Indigenous	Aromatic Part	Uses
1	*Acorus calamus* L. Araceae	Vekhand, Sweet Flag	Herb	Cultivated	Indigenous	All Parts	In perfumery, liquor, Vinegar, beer
2	*Adansonia digitata* L. Bombacaceae	Baobab Tree, Gorakh chinch	Tree	Cultivated	Exotic	Flowers	-
3	*Aegle marmelos* Corres ex Koen Rutaceae	Bel	Tree	Wild, Cultivated	Indigenous	Flowers, Fruit pulp	Fruit pulp in drinks and medicine
4	*Albizzia lebbeck* Benth. Mimosaceae	Shirish	Tree	Cultivated	Indigenous	Flowers	-
5	*Allium cepa* L. Liliaceae	Kanda	Herb	Cultivated	Exotic	Bulb	To flavor soup, sauces, meats
6	*Allium sativum*L. Liliaceae	Lasun	Herb	Cultivated	Exotic	Bulb	To flavor soup, sauces, meats, canned foods
7	*Alstonia scholaris* (L.) R.Br. Apocynaceae	Saptaparni, Devils Tree	Tree	Cultivated	Indigenous	Flowers	-
8	*Anethum graveolens* L. Apiaceae	Shepu, European Dill	Herb	Cultivated	Exotic	All parts	Leaves in sauces, soups, pickles, seeds as condiments
9	*Artabotrys hexapetalus* (Linn.*f*.) Bhandari Annonaceae	Hirvachafa	Climbing shrub	Cultivated	Indigenous	Flowers	-
10	*Asparagus densiflorus* (Kunth) Jessop (Syn.A.sprengeri Regel) Liliaceae	Shatavari	Climbing Shrub	Cultivated	Exotic	Flowers	-
11	*Azadirachta indica* A.Juss. Meliaceae	Neem	Tree	Wild, Cultivated	Indigenous	Flowers	-
12	*Bauhinia purpurea* Linn. Caesalpiniaceae	Kanchan	Tree	Cultivated	Indigenous	Flowers	-
13	*Bauhinia variegata* Linn. Caesalpiniaceae	Kanchan	Tree	Cultivated	Indigenous	Flowers	-
14	*Boswellia serrata* Roxb.exColebr. Caesalpiniaceae	Salai,Dhupali	Tree	Wild	Indigenous	Bark, Gum	Used in incense and paints, medicine -
15	*Carissa congesta* Linn. Apocynaceae	Karwand	Shrubs	Wild	Indigenous	Flowers	-

16	*Cascabela thevetia* (L.) Lipp. (Syn. *Thevetia peruviana* Pers.) Apocynaceae	PiwaliKaner	Tree	Cultivated	Exotic	Flowers	-
17	*Cassia fistula* Linn. Caesalpiniaceae	Bahava,Girmal	Tree	Wild	Indigenous	Flowers	-
18	*Cestrum diurnum* Linn. Solanaceae	Din-ka-Raja	Bushy Shrub	Cultivated	Exotic	Flowers	-
19	*Cestrum nocturnum* Linn. Solanaceae	Ratrani	Bushy Shrub	Cultivated	Exotic	Flowers	Used in perfumes and cosmetics
20	*Chrysanthemum indicum* L. Asteraceae	Shevanti	Herb	Cultivated	Exotic	Flowers	_
21	*Citrus aurantifolia* (Christm,) Sw. Rutaceae	Limbu, Nimbu	Tree	Cultivated	Indigenous	Leaves, Flowers, Fruits	Used as flavoring candies, ice-creams, drinks, confectionary
22	*Citrus sinensis* (L.) Obeck. (Christm,) Sw. Rutaceae	Mosambi	Tree	Cultivated	Exotic	Leaves, Flowers, Fruits	Used in perfumes, beverages, creams, soups as flavoring agent
23	*Clematis gouriana* Roxb.ex DC. Ranunculaceae	Morvel	Climber	Wild	Indigenous	Flowers	-
24	*Clerodendron inerme* Gaertn. Verbenaceae	Koynel	Straggling Shrub	Cultivated	Indigenous	Flowers, Leaves	Oil used in perfumery, cosmetics
25	*Coriandrum sativum* L. Apiaceae	Kothimbir	Herb	Cultivated	Exotic	All parts	Seed oil used as flavoring soups, sauces, confectionary. Leaves and seeds used as spice
26	*Cuminum cyminum* L. Apiaceae	Jeere, Jeera	Herb	Cultivated	Exotic	Fruits	Used as spice, to flavor curries culinary preparations, in medicine
27	*Curcuma longa* L. Zingiberaceae	Haldi, Halad	Herb	Cultivated	Indigenous	Rhizome	As spice, flavoring, colorant in cosmetic, medicine, perfume
28	*Cymbopogon citrates* (DC.) Stapf. Poaceae	Gavatichaha	Herb	Cultivated	Indigenous	Leaves	To flavor tea, curries, perfumes, soups, sharbat, in soaps
29	*Cymbopogon martini* Stapf. Poaceae	Rosha, RuichaGavat	Herb	Wild	Indigenous	Leaves	In perfumes, as massage oil
30	*Cyperus rotundus* L. Cyperaceae	Nagarmotha	Herb	Wild	Indigenous	Tubers	In perfumes, incense, medicine, hair-washings
31	*Daucus carota* L. Apiaceae	Gajar	Herb	Cultivated	Exotic	Seeds	To blend scents, perfumes, tinctures, alcoholic liqueurs

32	*Dianthus caryophyllus* L. Caryophyllaceae	-	Herb	Cultivated	Exotic	Flowers	Oil used to blend perfumes
33	*Foenicum vulgare* Mill. Apiaceae	-	Herb	Cultivated	Exotic	Fruits	Oil as flavoring in culinary preparations, confectionary, bread ,pastry, liquors, leaves for garnishing
34	*Glossocardia bosvaltea* (L.*f.*) DC. Asteraceae	Mirgi, Khadar-Shepu	Herb	Wild	Indigenous	Entire plant	-
35	*Holarrhena pubescens* (Buch-Ham.) Wall.ex.G.Don Apocynaceae	Dahikudi	Tree	Wild	Indigenous	Flowers	_
36	*Jasminum auriculatum*Vahl. Oleaceae	Jui	Climbing Shrub	Cultivated	Indigenous	Flowers	In perfumery, flowers for garlands, religious purpose
37	*Jasminum calophyllum* Wall. Oleaceae	-	Climbing Shrub	Cultivated	Indigenous	Flowers	In perfumery, flowers for garlands, religious purpose
38	*Jasminum malbaricum* Wight Oleaceae	-	Climbing Shrub	Cultivated	Indigenous	Flowers	In perfumery, flowers for garlands, religious purpose
39	*Jasminum multiflorum* (Burm.*f.*) Andr. Oleaceae	Kunda	Climbing Shrub	Cultivated	Indigenous	Flowers	In perfumery, flowers for garlands, religious purpose
40	*Jasminum officinale* Linn. Oleaceae	Jai, chameli	Climbing Shrub	Cultivated	Indigenous	Flowers	In perfumery, flowers for garlands, religious purpose
41	*Jasminum sambac* (L.) Ait. Oleaceae	Mogra, Batmogra	Suberct Shrub	Cultivated	Indigenous	Flowers	In perfumery, flowers for garlands, religious purpose
42	*Lavandula bipinnata* (L.) O.Ktze. (Syn.*L.*burmanniBenth.) Lamiaceae	Gunmahar	Herb	Wild	Indigenous	All parts	In soaps, toiletries
43	*Lawsonia inermis* Linn. Lythraceae	Mehandi	Shrub	Cultivated	Indigenous	Leaves, Flowers	Leaves used for dyeing body parts. Flowers in fermery
44	*Limonia acidissima* L. Rutaceae	Kawath, Kaith	Tree	Cultivated	Indigenous	Leaves	-
45	*Melia azedarach* Linn. Meliaceae	Bakam	Tree	Cultivated	Exotic	Flowers	Usable in perfumery
46	*Mentha spicata* L. Lamiaceae	Pudina	Herb	Cultivated	Exotic	All parts	Oil used in tooth-paste, chewing gums and confectionary, chutney

47	*Michelia champaca* L. Magnoliaceae	Sonchafa	Tree	Cultivated	Indigenous	Flowers	Flowers oil used in perfumery, Flowers in garlands
48	*Mimusops elengi* L. Sapotaceae	Bakul	Tree	Cultivated	Indigenous	Flowers	Flowers used in garlands
49	*Millintonia hortensis* L.*f.* Bignoniaceae	Akash-neem	Tree	Cultivated	Exotic	Flowers	Essential oil can be extracted
50	*Monstera deliciosa* Liebm. Araceae	-	Woody climber	Cultivated	Exotic	Fruits	-
51	*Moringa oleifera* Lam. Moringaceae	Shewga	Tree	Cultivated	Indigenous	Flowers	-
52	*Murraya koenigii* (L.) Spreng Rutaceae	Kadhi-patta, Kadhi-limb	Small Tree	Cultivated	Indigenous	Leaves	To flavor curry and articles
53	*Murraya paniculata* (L.) Jack Rutaceae	Kunti	Small Tree	Cultivated	Indigenous	Flowers	-
54	*Nelumbium nucifera* Gaertn. Nymphaeaceae	Kamal	Herb	Cultivated	Indigenous	Flowers	-
55	*Neolmarkia cadamba* [*Anthocephalus cadamba*] (Roxb.) Miq.] Rubiaceae	Kadamba	Tree	Cultivated	Indigenous	Flowers	-
56	*Nerium indicum* Mill. (Syn. *N.* odorumAit.) Apocynaceae	Kanher	Shrub	Cultivated	Exotic	Flowers	Flowers used in worship
57	*Nyctanthus arbor-tristis* Linn. Oleaceae	Parijat	Tree	Cultivated	Indigenous	Flowers	Oil used in toiletries, cosmetics and perfumes
58	*Nymphaea nouchali* Burm*f.* (Syn.*N.*stellata Wild.) Nymphaeaceae	Kamal	Herb	Cultivated	Indigenous	Flowers	-
59	*Ocimum americanum* L. Lamiaceae	Ran-tulsi	Herb	Wild	Indigenous	All parts	-
60	*Ocimum basilicum* L. Lamiaceae	Sabja	Herb	Cultivated, Wild	Indigenous	All parts	Essential oil used in flavors, confectionary, baked goods, sauces
61	*Ocimum tenuiflorum* L. (Syn.*O.sanctum* L.) Lamiaceae	Tulsi	Herb	Cultivated, Wild	Indigenous	All parts	Leaves used in medicine, oil valued in perfumes, in hair oils, soaps, incense etc., medicine

62	*Pandanus fascicularis* Lamk. Pandanaceae	Kewda	Tree	Cultivated	Indigenous	Male flower spadix	Essential oil valued in perfumes, in hair oils, soaps, incense etc.
63	*Parkinsonia aculata* Linn. Caesalpiniaceae	Vilayati-Babhul	Tree	Wild	Exotic	Flowers	-
64	*Plumeria rubra* L. forma acuminate (Ait.) Santapou & Irani ex Shah Apocynaceae	Chafa	Tree	Cultivated	Exotic	Flowers	-
65	*Polyanthus tuberosa* L. Amaryllidaceae	Rajanigandha, Nishigandha	Herb	Cultivated	Exotic	Flowers	Essential oil used in perfumery, in beverages, ice-cream, candy etc.
66	*Psidium guajava* L. Myrtaceae	Peru, Jam	Tree	Cultivated	Exotic	Flowers	-
67	*Rosa damascena* Mill. Rosaceae	Gulab	Shrub	Cultivated	Exotic	Flowers	Flowers used to prepare gulkand; Rose oil in perfumes, syrups, for sprinkling in social functions etc.
68	*Santalum album* Linn. Santalaceae	Chandan	Tree	Wild	Indigenous	Heart wood	Volatile oil from wood used in perfumes, cosmetics, soaps.
69	*Sesamum indicum* L. (Syn.*S.* orientale L.) Pedaliaceae	Til	Herb	Cultivated	Indigenous	Seeds	Used in cosmetics. soaps, medicine.
70	*Spermadictyon suaveolens* Roxb. (Syn. *Hamiltonia suaveolens* Roxb.) Rubiaceae	Gendhaya	Shrub	Wild	Indigenous	Flowers	-
71	*Tagetus erecta* L. Asteraceae	Zendu	Herb	Cultivated	Exotic	Flowers	Flower oil used in hair lotions and as fly repellent
72	*Tagetus patula* L. Asteraceae	Zendu	Herb	Cultivated	Exotic	Flowers	Flowers used in perfumes
73	*Tectona grandis* Linn. *f.* Verbenaceae	Sag	Tree	Wild, Cultivated	Indigenous	Flowers	-
74	*Vallaris solanacea* (Roth) O. Ktze Apocynaceae	-	Climbing Shrub	Cultivated	Indigenous	Flowers	-
75	*Zingiber officinale* Roscoe Zingiberaceae	Ala	Herb	Cultivated	Indigenous	Rhizome	Rhizome used in food preparation, soft drinks, candy, alcoholic beverages etc.

REFERENCES

1. Patil DA. Flora of Dhule And Nandurbar Districts (Maharashtra), Bishen Singh Mahendra Pal Singh, Dehradun, India, 2013.
2. Kshirsagar SR, Patil DA. Flora of Jalgaon District (Maharashtra).Bishen Singh Mahendra Pal Singh, Dehradun, India, 2008.
3. Anonymous (1948-1967) The Wealth of India: Raw Materials. Vol. A-2. Publications And Information Directorate, CSIR, New Delhi, India.
4. Anonymous (1979-1975) Medicinal And Aromatic Plants Abstracts. Publications And Information Directorate, CSIR, New Delhi, India.
5. Kochhar SL. Economic Botany In The Tropics. (II ne Ed.)MacMillan India Ltd., Delhi, India, 2006.
6. Watt G. (1889-1893) A Dictionary of Economic Products of India. Vol. 1-6. Periodical Expert. Shahadara, Delhi, India.
7. Badhwar RL, Rao PS, Sethi H. Some Useful Aromatic Plants.Forest Research Institute, Dehradun, India, 1964.
8. Chadha KL, Gupta R. Advances In Horticulture (Medicinal And Aromatic Plants) Vol.11. pp. 932+ XXXIII. Malhotra Publishing House, New Delhi, India, 1995.
9. Bhattacharjee SK. Handbook of Aromatic Plants. Pointer Publishers, Jaipur, India, 2000.
10. Akhtar H. Status Report on Aromatic And Essential Oil-bearing Plants In NAM Countries. Publications And Information Directorate, CSIR, New Delhi, India, 1998.
11. Ajay S. Plant In Ancient Indian Civilizations. Agam Kala Prakashan, New Delhi, India, 2008.