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PRELIMINARY FLORAL DIVERSITY ANALYSIS OF KUSHI VILLAGE AND ADJOINING AREAS DIST. – SATARA, MS (INDIA)

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Abstract:

The floral diversity helps in the magnitude of biodiversity of an area. In the present investigation floristic components of Kushi village from Satara district are enumerated. The preliminary assessment of study area results into identification floral components from 56 families comprising of 112 taxa. Among 57 families Fabaceae (8 spp.), Acanthaceae (7 spp.), Malvaceae (6 spp.), Apocynaceae & Convolvulaceae (5 spp. each) and Asteraceae (4 spp.) are dominant in the study region. Among the studied taxa (45) are herbs, (21) shrubs, (18) climbers and (28) trees. The area harbors some endemic species *Viz. Delphinium malabaricum, Ceropogia bulbosa, Ceropogia hirsuta* etc.

Keywords: Kushi, Satara, floristic, biodiversity, Endemic

Introduction:

India is one of the mega-biodiverse countries of the world. It has diverse biogeography, and consists of about 17,6768 plant species, which is almost 12.5% of total species in the world. Western Ghats comprises more than 7,400 plant species of which 1,270 are endemic (Nayar et al.2014). Floristic diversity refers to the variety and variability of plants in given region. Satara district lies in Northern Western Ghats of Maharashtra (Sahyadri Ranges) which is rich in biodiversity. The main system of hills in the Satara district are the 'Sahyadri ranges and 'Mahadeo hills. The forts on hilltops of the Sahyadri (Northern Western Ghats) have seen a turbulent historical past and are famous for their architectural style and cultural heritage. Besides this, these hilltops are home to an incredible plant diversity. Satara district is located in the western part of Maharashtra. It lies between the north latitudes of 17.5 and 18.11 and east longitude of 73.33 and 74.54. It has spread over an area of 10,480 sq. km (3.4% total area of Maharashtra). The climate ranges from rainiest Mahabaleshwar to drier regions of Man Tehsil. of Satara is cool and healthy with average annual rainfall of 1033 mm. The study region Kushi is situated 13 kms. away from Satara. The total geographical area of village is 613.82 hectares. It is

located between three hills around which are the storehouse of endemic and unique floral diversity.

Material and Methods:

Extensive seasonal field visits were done for the collection of plant specimens. The collected material was identified with Flora of Mahabaleshwar and adjoining, (Deshpande et. al.1993), Flora of Maharashtra State Dicotyledons and Monocotyledons (Singh & Karthikeyan 2001). The identified plants were enlisted in- table with necessary information viz. family, common name, habit and IUCN status or endemism. The botanical names are as per database on POWO and TROPICOS.

Results:

The Kushi village shows rich floristic diversity within a small geographical area of 613.82 hectares. The area harbors a variety of plants like legumes, wild edibles, ornamentals, parasites along with some rare, endangered and threatened species. The area comprises of 112 species of flowering plants belonging to 57 families 100 genera. The dominant families Fabaceae (8 spp.), Acanthaceae (7 spp.), Malvaceae (6 spp.), Apocynaceae & Convolvulaceae (5 spp. each) and Asteraceae (4 spp.). Among the studied taxa (45) are herbs, (21) shrubs, (18) climbers and (28) trees. The region supports 36 IUCN Red Listed plant species like Critically Endangered (1 spp.) Endangered (2 spp.) Vulnerable (2 spp.) and Least Concern (31 spp.) which are under threat and conservation measures needs to be taken to maintain the diversity of these taxa. The area harbors some endemic species viz. *Delphinium malabaricum*, *Ceropegia bulbosa*, *Ceropegia hirsuta* etc.

Discussion:

Among 112 enlisted taxa 36 are categorized under IUCN Red List of Threatened Species. The area supports variety of wild edible, wild ornamental and endemic species which needs immediate attention from conservation point of view. Wild edible species can be domesticated and utilised to provide the economic stability to the local people. Lack of awareness about the unique diversity, threats and proper utilization of these bioresources are the major threats to the local flora.

Table 1: List of flowering plants from the study region

| Sr. No. | Botanical Name | Family | Common Name | Habit | Status |
|---------|--|---------------|-----------------|-------|--------|
| 1. | <i>Asystasia dalzelliana</i> Santapau. | Acanthaceae | Neelkantha | H | |
| 2. | <i>Barleria cristata</i> Roxb. | Acanthaceae | Pandhri Koranti | S | |
| 3. | <i>Barleria prionitis</i> L. | Acanthaceae | Pivali Koranti | S | |
| 4. | <i>Crossandra infundibuliformis</i> (L.)Nees. | Acanthaceae | Aboli | H | LC |
| 5. | <i>Eranthemum roseum</i> R. Br | Acanthaceae | Dasmuli | H | LC |
| 6. | <i>Justicia adhatoda</i> L. | Acanthaceae | Adulsa | S | LC |
| 7. | <i>Neuracanthus sphaerostachyus</i> (Nees) Dalz. | Acanthaceae | Golgonda | H | - |
| 8. | <i>Achyranthes aspera</i> L. | Amaranthaceae | Aghada | H | |
| 9. | <i>Cleosia argentea</i> L. | Amaranthaceae | Kardeai | H | |
| 10. | <i>Annona squamosa</i> L. | Annonaceae | Sitaphal | T | LC |
| 11. | <i>Portulaca olearacea</i> L. | Annonaceae | Ghol | H | |
| 12. | <i>Catharanthus roseus</i> (L.) G. Don | Apocynaceae | Sadaphuli | H | |
| 13. | <i>Ceropegia bulbosa</i> Roxb. | Apocynaceae | Ankalodya | C | |
| 14. | <i>Ceropegia hirsuta</i> Wight&Arn | Apocynaceae | Haman | C | |
| 15. | <i>Thevetia peruviana</i> K. Schum | Apocynaceae | Bitti | T | |
| 16. | <i>Wattakaka volubilis</i> (L.f.) Stapf | Apocynaceae | Hirandodi | C | |
| 17. | <i>Tylophora dalzellii</i> Hook. F | Asclepidaceae | Pitmari | C | |
| 18. | <i>Agave americana</i> L. | Asparagaceae | Ghayapat | H | LC |
| 19. | <i>Chlorophytum borivilianum</i> Sant. f | Asparagaceae | Safed Musali | E | CR |
| 20. | <i>Aloe vera</i> (L.) Burm.f. | Asphodelaceae | Korpad | H | |
| 21. | <i>Galinsoga parviflora</i> Cav. | Asteraceae | Potato Weed | H | |
| 22. | <i>Senecio bombayensis</i> N. P. Balakar. | Asteraceae | Sonaki | H | |
| 23. | <i>Tridax procumbens</i> L. | Asteraceae | Ekdandi | H | |
| 24. | <i>Xanthium strumarium</i> L. | Asteraceae | Landaga | H | |
| 25. | <i>Impatiens balsamina</i> L. | Balsaminaceae | Terda | H | |
| 26. | <i>Dolichandrone falcata</i> (wall ex Dc.) Seem. | Bignoniaceae | Medhshingi | T | |

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|-----|---|----------------|-----------------------|---------|----|
| 27. | <i>Tecoma stans</i> (L.) Juss ex kunth. | Bignoniaceae | Phutani | T | LC |
| 28. | <i>Bombax ceiba</i> L. | Bombaceae | Kate-Saveri | T | LC |
| 29. | <i>Brassica campestris</i> L. | Brassicaceae | Mohari | H | |
| 30. | <i>Canna indica</i> L. | Cannaceae | Kardal | H | |
| 31. | <i>Caesalpinia decapetala</i> (Roth)Alston. | Cesalpiniaceae | Chilar | S | LC |
| 32. | <i>Cleastrus paniculatus</i> Willd | Cleastraceae | Kanguni | C | |
| 33. | <i>Gloriosa superba</i> L. | Colchicaceae | Flame lily | C | LC |
| 34. | <i>Iphigenia indica</i> (L.) A. Gray. ex Kunth | Colchicaceae | Jambhale bhuichkra | H | LC |
| 35. | <i>Iphigenia stellata</i> Blatt. | Colchicaceae | Gulabi bhuichkra | H | EN |
| 36. | <i>Anogeissus latifolia</i> Wall. Ex Bedd. | Combretaceae | Dhawada | T | |
| 37. | <i>Terminalia crenulata</i> (Heyne) Roth. | Combretaceae | Ian | T | |
| 38. | <i>Cyanotis fasciculata</i> (B. Heyne ex Roth) Schult and Schult.f. | Commelinaceae | Nilwanti | H | LC |
| 39. | <i>Hymenocallis littoralis</i> (Jacq.) Salisb | Commelinaceae | Spider lily | H | |
| 40. | <i>Ipomea alba</i> L. | Convolvulaceae | Moonflower | C | |
| 41. | <i>Ipomea carnea</i> Jaacq. | Convolvulaceae | Besharam | S | |
| 42. | <i>Ipomea hederifolia</i> L. | Convolvulaceae | Lal Pungali | C | |
| 43. | <i>Ipomea purpurea</i> (L) Roth. | Convolvulaceae | Morning Glory | C | |
| 44. | <i>Ipomea quamoclit</i> L. | Convolvulaceae | Ganeshvel | C | |
| 45. | <i>Momordica dioica</i> Roxb. ex Willd | Cucurbitaceae | Kartoli | C | |
| 46. | <i>Cyprus rotundus</i> L. | Cyperaceae | Lavhala | H | |
| 47. | <i>Dioscorea bulbifera</i> L. | Dioscoreaceae | Dukarkand | C | |
| 48. | <i>Eriocaulon tuberiferum</i> A. R. Kulk. & Desai | Eriocaulaceae | Pangenda | H | VU |
| 49. | <i>Euphorbia geniculata</i> Ortega. | Euphorbiaceae | Dudhani | H | |
| 50. | <i>Euphorbia hirta</i> L. | Euphorbiaceae | Dudhani | H | |
| 51. | <i>Abrus precatorius</i> L. | Fabaceae | Gunj | Climber | |
| 52. | <i>Alysicarpus tetragonolobus</i> Edgew. | Fabaceae | Lal shevra | H | |

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|-----|---|----------------|------------------------|---------|----|
| 53. | <i>Bauhinia racemosa</i> Lam. | Fabaceae | Apata | T | |
| 54. | <i>Clitoria ternatea</i> L. | Fabaceae | Gokarn | C | |
| 55. | <i>Crotalaria pallida</i> Aiton | Fabaceae | Jungli tag | S | |
| 56. | <i>Desmodium gangeticum</i> (L.) DC | Fabaceae | Shalparni | U | |
| 57. | <i>Indigofera cassioides</i> DC. | Fabaceae | Unhali | S | |
| 58. | <i>Millettia pinnata</i> (L.) Panigrahi | Fabaceae | Karanj | T | LC |
| 59. | <i>Tamarindus indica</i> L. | Fabaceae | Chinch | T | LC |
| 60. | <i>Canscora diffusa</i> (Vahl.) R . Br | Gentianaceae | Kilwar | H | |
| 61. | <i>Exacum pedunculatum</i> L. | Gentianaceae | Stalked Persian violet | H | |
| 62. | <i>Curculigo orchioides</i> Gaertn. | Hypoxidaceae | Kali musali | H | |
| 63. | <i>Anisomeles indica</i> (L.) Kuntze | Lamiaceae | Gopali | H | |
| 64. | <i>Lavandula bipinnata</i> (Roth)Kuntze | Lamiaceae | Ghodeghui | Herb | LC |
| 65. | <i>Ocimum sanctum</i> L. | Lamiaceae | Tulsi | Herb | |
| 66. | <i>Ledebouria revoluta</i> (L. f.) Jessop | Liliaceae | Khajkanda | Herb | |
| 67. | <i>Lawsonia inermis</i> Linn | Lythraceae | Mhendi | Tree | LC |
| 68. | <i>Woodfordia fruticosa</i> (L) Kurz. | Lythraceae | Dhyati | Shrub | LC |
| 69. | <i>Abutilon indicum</i> (L.) Sweet | Malvaceae | Mudra | Shrub | |
| 70. | <i>Alcea rosea</i> L. | Malvaceae | Chitrsevati | Shrub | |
| 71. | <i>Hibiscus rosa-sinensis</i> L. | Malvaceae | Jaswand | Shrub | |
| 72. | <i>Sida acuta</i> Burm.f | Malvaceae | Jangalimethi | Herb | |
| 73. | <i>Sterculia urens</i> Roxb. | Malvaceae | Bhutya | Tree | |
| 74. | <i>Urena lobata</i> L. | Malvaceae | Vanbhendi | Shrub | LC |
| 75. | <i>Azadirachta indica</i> Juss. | Meliaceae | Kadulimb | Tree | LC |
| 76. | <i>Cocculus hirsutus</i> (L) Diels. | Menispermaceae | Vasanvel | Climber | |
| 77. | <i>Tinospora cordifolia</i> (Wild) Miers ex Hook. | Menispermaceae | Gulvel | Climber | |
| 78. | <i>Acacia catechu</i> (L.f) Willd | Mimosaceae | Khair | Tree | LC |
| 79. | <i>Acacia leucophloea</i> Willd. | Mimosaceae | Hivar | Tree | LC |
| 80. | <i>Acacia nilotica</i> (L.) Willd ex Delile. | Mimosaceae | Babhool | Tree | LC |

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|------|--|------------------|---------------|---------|----|
| 81. | <i>Mimosa pudica</i> L. | Mimosaceae | Lajalu | Herb | LC |
| 82. | <i>Ficus benghalensis</i> L. | Moraceae | Vad | Tree | |
| 83. | <i>Ficus racemosa</i> L. | Moraceae | Umbar | Tree | LC |
| 84. | <i>Ficus religiosa</i> L. | Moraceae | Pimpal | Tree | LC |
| 85. | <i>Moringa oleifera</i> Lam. | Moringaceae | Drumstick | Tree | LC |
| 86. | <i>Pisidium guajava</i> L. | Myrtaceae | Peru | Tree | |
| 87. | <i>Syzygium cumini</i> (L.) Skeels | Myrtaceae | Jambhul | Tree | LC |
| 88. | <i>Bougainvillea spectabilis</i> Willd | Nyctaginaceae | Kagdiphul | Shrub | |
| 89. | <i>Mirabilis jalapa</i> L. | Nyctaginaceae | Gulmus | Herb | |
| 90. | <i>Jasminum malabaricum</i> Wight | Oleaceae | Ranmogra | Shrub | |
| 91. | <i>Jasminum sambac</i> Ait. | Oleaceae | Mogara | Shrub | |
| 92. | <i>Nyctanthes arbor-tristis</i> L. | Oleaceae | Parijatak | Tree | LC |
| 93. | <i>Sopubia delphiniifolia</i> (L.) G.Don | Orbachaceae | Dudhali | Herb | |
| 94. | <i>Oxalis corniculata</i> L. | Oxalidaceae | Ambushi | Herb | |
| 95. | <i>Argemone mexicana</i> L. | Papaveraceae | Pivaladhotra | Herb | |
| 96. | <i>Cryptolepis buchananii</i> R.Br. | Periplocaceae | Kavali | Shrub | |
| 97. | <i>Plumbago zylanica</i> L. | Plumbaginaceae | Chitrak | Shrub | |
| 98. | <i>Cymbopogon citratus</i> (DC.) Stapf | Poaceae | Gavtichaha | Herb | |
| 99. | <i>Clematis gouriana</i> Roxb. | Ranunculaceae | Morvel | Climber | |
| 100. | <i>Delphinium malabaricum</i> (Huth) Munz | Ranunculaceae | Nilambari | Herb | |
| 101. | <i>Ixora brachiata</i> Roxb. | Rubiaceae | Lokhandi | Tree | |
| 102. | <i>Murraya koenigii</i> (L.) Spreng | Rutaceae | kadipatta | Tree | LC |
| 103. | <i>Santalum album</i> L. | Santalaceae | Chandan | Tree | VU |
| 104. | <i>Cardiospermum halicacabum</i> L. | Sapindaceae | Kanphuti | Climber | LC |
| 105. | <i>Striga densiflora</i> (Benth.) Benth. | Scrophulariaceae | Aagya | Herb | |
| 106. | <i>Gnidia glauca</i> (Fres.) Gilg | Thymelaeaceae | Datpadi | Shrub | |
| 107. | <i>Grewia hirsuta</i> Vahl. | Tiliaceae | Kirmid | Shrub | LC |
| 108. | <i>Rothea serrata</i> (L.) Steane & Mabb | Verbenaceae | Bharangi | Shrub | |
| 109. | <i>Tectona grandis</i> L. | Verbenaceae | Sagvan | Tree | EN |
| 110. | <i>Vitex negundo</i> L. | Verbenaceae | Nirgudi | Tree | LC |
| 111. | <i>Curcuma aromatica</i> Salisb. | Zingiberaceae | Jangali haldi | Herb | |

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|------|---|---------------|--------|------|--|
| 112. | <i>Zingiber neesatum</i> (J. Graham) Ramamoorthy | Zingiberaceae | Ranale | Herb | |
|------|---|---------------|--------|------|--|

CR= Critically Endangered; EN = Endangered; LC = Least Concern; VU = Vulnerable;

H= Herb; E = Ephemeral; S= Shrub; T= Tree; C= Climber; U= Undershrub

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