



ELECTRONIC DATABASE OF SOCIO-ECONOMICALLY IMPORTANT PLANTS OF WARDHA DISTRICT

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ABSTRACT:

Socio-economically important plants are useful in many ways i.e. directly as food or indirectly as products. Plants provide us food, fodder, fiber, fuel, flowers for ornamental use, for religious and celebration purpose, raw materials for many industries including pharmaceuticals, timber for construction etc. The present study was conducted to explore plant diversity during 2013 to 2017 at various parts of eight talukas of Wardha district in Vidarbha (Maharashtra). In this study, the data collected from different localities of the district shows 760 dicot species which belongs to 106 families. Out of these, most of the plants are socio-economically important. This data was fed in the DELTA (Descriptive Language for Taxonomy) package (Dallwitz, *et al.*, 2000) and prepared electronic database of Wardha district. The characters used to describe various plant parts such as habit, root, stem, leaf, flower, fruits, seeds etc. and noted various uses such as medicinal, dye, tannin, fodder, avenue, spices and condiments, ornamental, timber, cultivation for its flower, fiber, oil, pulses, fruit vegetables, leafy vegetables, border and fence, sacred etc. Additional information of plant species were also incorporated along with family, botanical names, synonyms and references, full morphological descriptions, common and vernacular names, flowering and fruit duration, location, status of the plants in nature and digital photographs (Ramteke and Srinivasu 2016). This electronic database is useful for identification of plant species with their economic uses and several other for rural developmental and welfare programs.

Keywords: Vidarbha (Maharashtra), dye, tannin, fodder, avenue, spices and condiments, ornamental, timber.

INTRODUCTION:

A **database** is an organized collection of [data](https://www.britannica.com/technology/database). Databases are created to operate large quantities of information by inputting, storing, retrieving, and managing that information through software programs, which provides information of all the data in different ways to all users. In other words it is a computer-based collection or listing of information, usually organized with searchable elements or fields. Flora is Collection of information of the plants of a particular region, habitat, or geological period. If this information is presented in electronic format then it is called 'electronic database'. Electronic database of Wardha district shows 760 dicot plant species belongs to 106 families and 445 genera. This database provides us the socio-economic importance of plants such as fodder plants, oilseed plants, tannin yielding plants, ornamental plants, vegetable plants etc. This type of work was also carried out in Mumbai, Nagpur and Chandrapur. This database helps us in accurate and faster identification of plant species with their location and socio-economical values of that region along with plant descriptions. Electronic database is a collection of economic plant data arranged in a systematic way to make the search easy and fast.

Hence, it is thought worthwhile to study and prepare electronic database of Wardha district.

DELTA package has several advantages such as

- It is a permanent database with digital images which helps to retained original colours of plants.
- It is eco-friendly.
- This database can be updated regularly.
- It requires minimal maintenance.
- Digital herbarium easily accessible.
- Very large information of plants can be stored digitally in a small space of computer.
- No biodegradation.
- Prevent from pathogenic or insect attack etc.

This new method is well accepted technique in Europe, America, Australia and even in India. Other important information such as botanical name, family, synonyms, full description such as habit, habitat, phyllotaxis, inflorescence type, flowering and fruiting description, status of the plant in the nature, common and vernacular name, economical and medicinal values of plants, and distribution in Wardha district along with digital images of respectively plants etc. added to the electronic database for further applications.

METHOD AND MATERIAL:

The socio-economically important plants of Wardha district was explored in all seasons for four years (2013-2017). During the study period several field trips were undertaken including visits to water bodies, cultivated lands, gardens, road sides and forest area etc. Plants collected during flowering and fruiting period for accurate identification of specimen. Digital photos were taken in their natural habitat with flowering and fruiting stage to complete preparation of database. The data was prepared and analyzed in the laboratory with the help of available literature (Ramteke and Srinivasu 2016).

RESULT AND DISCUSSION:

The present study was clear that large number of species, which are used for various purposes such as food, vegetable, fodder, fibers, timber, oil etc. They can be broadly classified into medicinal plants, ornamental plants, avenue plants, edible fruits, fruit vegetables, leafy vegetables, fiber yielding plants, oil-producing plants, timber plants etc. The details of each category of plants are given below.

Some **Medicinal plants** are *Azadirachta indica* A. Juss., *Centella asiatica* (L.) Urban, *Tridax procumbens* L., *Catharanthus roseus* (L.) G. Don., *Rauwolfia serpentina* Benth. Ex Kurz, *Withania somnifera* (L.) Dunal., *Bacopamonnieri* (L.) Wettst., *Andrographis paniculata* (Burm. f.) Nees, *Justicia adhatoda* L., *Ocimum tenuiflorum* L., *Santalum album* L., etc.

Ornamental plants are *Polyalthia longifolia* (Sonn.) Thwaites., *Viola tricolor* L., *Alcea rosea* L., *Bauhinia tomentosa* L., *Rosa canina* L., *Aster amellus* L., *Chrysanthemum indicum* L., *Cascabella thevetia* (L.) Lippold, *Tabernaemontana citrifolia* L. etc.

Avenue plants are *Kigelia africana* (Lam.) Benth., *Bauhinia purpurea* L., *B. variegata* L., *Delonix regia* (Hook.) Raf., *Albizia lebbek* (L.) Benth. var. *lebbek*, *Bombax ceiba* L. etc.

Timber yielding plants are *Tectona grandis* L. f., *Santalum album* L. *Gmelina arborea* Roxb., *Ailanthus excels* Roxb. etc.

Fodder plants are *Stylosanthes fruticosa* (Retz.) Alston, *Alysicarpus longifolius* (Spreng.) Wight & Arn., *Alysicarpus scariosus* (Spreng.) Thwaites. *Crotalaria medicaginea* Lam., *Cyamopsis tetragonoloba* (L.) Taub., *Desmodium triflorum* (L.) DC., *Medicago polymorpha* L., *Melilotus alba* Medik., *Vigna trilobata* (L.) Verdc. var. *trilobata*, *Mimosa hamata* Willd. etc.

Edible fruits are *Tamarindus indica* L., *Annona squamosa* L., *Citrus aurantii folia* (Christm.) Swingle, *C. sinensis* (L.) Osbeck, *Limonia acidissima* Groff, *Ziziphus mauritiana* Lam., *Z. oenopoila* (L.) Mill., *Morus alba* L. etc.

Some **Border and fence** plant are *Argyrea nervosa* (Burm. f.) Bojer, *Ipomoea cairica* (L.) Sweet. *I. quamoclit* L. etc.

Fruit vegetables plants are *Lycopersicon lycopersicum* (L.) Karsten., *Solanum melongena* L., *Abelmoschus esculentus* (L.) Moench, *Artocarpus heterophyllus* Lam. etc.

Sacred plants are *Ocimum tenuiflorum* L., *Ficus bengalensis* L., *F. religiosa* L., *Aeglema melos* (L.) Correa, etc.

Pulses plants are *Cajanus cajan* (L.) Millsp., *Vigna aconitifolia* (Jacq.) Marechal, *V. mungo* (L.) Hepper, *V. radiata* (L.) R. Wilczek etc.

Leafy vegetables are *Trigonella foenum-graecum* L., *Amaranthus cruentus* L., *Spinacia oleracea* L., *Hibiscus sabdariffa* L., *Lathyrus sativus* L., *Trigonella foenum-graecum* L. etc.

Dye yielding plants are *Bixa orellana* L., *Rivina humilis* L., *Butea monosperma* (Lam.) Taub., *Indigofera tinctoria* L., *Lawsonia inermis* L. *Morinda pubescens* Sm. etc.

Oil seeds are *Helianthus annuus* L., *Ricinus communis* L., *Sesamum indicum* L., *Brassica juncea* (L.) Czern., *B. nigra* (L.) K. Koch, *Linum usitatissimum* L. etc.

Fruit Pickle plants are *Carissa carandas* L., *Citrus aurantiifolia* (Christm.) Swingle, *Citrus limon* (L.) Osbeck, *Phyllanthus emblica* L. etc.

Tannin yielding plants are *Acacia auriculiformis* A. Cunn. Ex Benth. Lond., *Parkia biglandulosa* Wight & Arn. *Terminalia elliptica* Willd. etc.

CONCLUSION

This database includes many plants, which are economically important and socially useful to mankind in several ways. In this study, these important plant species were identified which provide significant economic, social and ecological values which are of fundamentally important for livelihood of rural folk. This digital database provides us existing plant information and ensure that local communities will certainly use the contribution of this database in future as readymade reference. It is also useful that numerous wild plants which are now available and in use gives insight for high potentiality for regional economic development. Further, this database helps

to identify rare and important species to develop suitable methods for propagation and production. Cultivation of those species not only fulfils the domestic and commercial demand but also to provide insight for conservation of these wild, important and rare species. Therefore, an urgent need to develop this kind of databases in every district to show the current status of the plant in nature, inclination to manage, conserve, protect and utilise our plant resources properly and subsequently to develop and uplift the tribal and rural communities' income.

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Medicinal plants	440 species	Leafy vegetables	15 species
Ornamental plants	183 species	Dye yielding plants	12 species
Avenue plants	43 species	Oil seeds	11 species
Timber yielding plants	36 species	Fiber yielding	7 species
Fodder plants	30 species	Gum and resin yielding plants	7 species
Edible fruits plants	28 species	Seeds edible plant	6 species
Border and fence plant	21 species	Fruit Pickle plants	5 species
Fruit vegetables	19 species	Tannin yielding plants	4 species
Flowers for aesthetics and celebration	19 species	Spices and Condiments	4 species
Sacred plants	19 species	Roots edible	3 species
Pulses plants	8 species	Liquor yielding plants	2 species

Table: Some Socio-economical important Plants

