

A database on endemic plants at Tirumala hills in India

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Abstract:

Medicinal plants play an important role in health care. The use of medicinal plants for treatment is growing in view of cost and non-compliance of modern medicine as in case of non-communicable diseases. Plants such as *Boswellia, ovalifoliolata*, *Cycas beddomei*, *Pimpinella tirupatiensis*, *Pterocarpus santalinus*, *Shorea thumbuggaia*, *Syzygium alternifolium*, *Terminalia pallida* are endemic to Tirumala hills of seshachalam range falling under the Eastern Ghats of India. These plants species have medicinal properties such as anti-tumorogenic, anti-microbial, purgative, hypoglycemic, abortifacient, analgesic, anti-septic, anti-pyretic and anti-inflammatory. We created a database named DEPTH in an attempt to communicate data of these plants to the scientific community. DEPTH contains data on scientific name, vernacular name, family name, morphological description, economic importance, known medicinal compounds and medicinal importance.

Availability: <http://svimstpt.ap.nic.in/MedicinalPlants/mainpage.htm>

Keywords: Tirumala hills; endemic plants; economic importance; medicinal importance

Background:

Medicinal plants play an important role in health care. The demand for medicinal plants in health care is about 70-80% [1]. Growing recognition of medicinal plants is due to several factors like cultural acceptability, accessibility, affordability and ability to meet psychological needs [2]. Medicinal plants are the local heritage with global importance. There are number of plants used for treating diseases which are not comprehensively documented due to a lack of communication and low frequency of their use. The traditional use of low profile and less known medicinal plants should be documented to disseminate the therapeutic efficacy to pave the way for preparation of acceptable medicine and to reduce the pressure on over exploited species [3]. Databases on medicinal plants are available [4, 5]. However, a database on endemic plants of Tirumala hills and their medicinal values is not available. Seven endemic plants namely *Boswellia, ovalifoliolata*, *Cycas beddomei*, *Pimpinella tirupatiensis*, *Pterocarpus santalinus*, *Shorea thumbuggaia*, *Syzygium alternifolium*, *Terminalia pallida* are endemic to Tirumala hills of Seshachalam range of Eastern Ghats. These plants have medicinal properties and are used in herbal therapy to cure a wide range of health problems. There is a need to

bridge the gap for data access on these plants to the scientific community [6]. Here, we describe a database of these plants named DEPTH.

Methodology:

Data collection

Data of endemic plants were collected from various sources like website [6], search engine [7], news letter [8], journals [9-25], databases [26, 27].

Database design

The database is developed using standard HTML.

DEPTH features

Seven separate links (Profile, *Boswellia ovalifoliolata*, *Cycas beddomei*, *Pimpinella tirupatiensis*, *Pterocarpus santalinus*, *Syzygium alternifolium*, *Shorea thumbuggaia*, *Terminalia pallida*) are provided to access the literature on these plants. The record entry consists of scientific name, vernacular name, family, morphological description, economic importance, compounds identified, medicinal importance and references. A screen shot of the database is given in Figure 1.



Figure 1: A screen shot of DEPTH

Utility:

The database contains information on seven species of endemic plants in Tirumala Hills. One of them is a *gymnosperm* and the remaining six are *angiosperms*. Different parts of the plants are used in herbal therapy. *Boswellia ovalifoliolata* stem bark is a mosquito repellent and its resin is used for external applications. The male cones of *Cycas beddomei* are harvested for medicinal use in ayurveda system of medicine [12]. *Pimpinella tirupatiensis* seeds are used for treatment of Bronchitis; fruits as diuretics for curing ulcers of stomach, throat and genital organs, management of scorpion sting, rheumatic ailments and as abortifacient agent [13]. Fruit decoction of *Pterocarpus santalinus* is administered as astringent tonic in dysentery; its wood and fruit to treat diaphoretic, bilious infections and chronic dysentery; heart wood as anti-tumorogenic, for treatment of headache, skin diseases, fever, boils, scorpion sting and to improve eye-sight; stem bark in combination with leaf as antimicrobial agent and as anti-hyperglycemic [15-21]. *Syzygium alternifolium* fruit is used for curing stomach ache, ulcers and management of

rheumatic pains; seeds as anti-diabetic agents; leaves to treat dry cough and dysentery; and stem bark as antiseptic [25]. Plant extracts and leaf juice of *Shorea thumbuggaia* are administered for ear ailments. Roots of *Terminalia pallida* in combination with its fruit kernel is used to treat venereal diseases and peptic ulcer; fruit to cure diarrhea, cough, cold, swellings, piles, fever, ulcers and as antipyretic, purgative; while the bark is used as anti-inflammatory agent.

Future development:

We plan to update and further improve the database. We are also planning to provide online hyperlinks to the corresponding open access articles in the near future. The database will also be modified to develop provisions for search to view chemical structure of compounds isolated from these plants. The database contains just seven records based on available information pertaining to the endemic plants of Tirumala hills.

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