

# Diversity of Genus *Acacia* Miller from Dandoba Hill, Miraj, Maharashtra, India

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## ABSTRACT

Dandoba hill which is also known as Dandakaranya is famous for temple of Lord Shiva and is covered by unique flora. There is diversity among the angiosperms. Present work is a piece of taxonomic study based on critical field studies of members of family Fabaceae from Dandoba hill. Amongst the members of family Fabaceae, the genus *Acacia* P. Miller is recorded commonly from the study area which is due to the typical dry environment. Genus *Acacia*, commonly known as the wattles or acacias, is a large genus of shrubs and trees having great ethno-medicinal importance. Authors have cultivated 4 species of *Acaia* having great ethno-medicinal importance for their cultural study. This revision provides an updated nomenclature, citations, detailed morphological descriptions, and notes on identity, present ecological status, and socioeconomic relevance.

**Keywords:** *Acaia*, Dandoba hill, Diversity, Ethno-medicines, Fabaceae

## INTRODUCTION

Genus *Acacia*, commonly known as the wattles or acacias, is a large genus of shrubs and trees having great ethno-medicinal importance. It is the cosmopolitan genus comprising about 1380 species (Maslin *et al.*, 2003). Acacias commonly grow in tropical, subtropical and warm temperate parts of the World. 144 species were recorded in Africa. 89 species were recorded in Asia. In the Americas 185 species were recorded and from Australian region 993 species were recorded.

Indian *Acacia* can be divided into two main groups based on their leaf morphology viz., species with fernlike pinnate leaves divided into small leaflets and species bearing phyllodes (broadened leaf petiole functioning like leaf blade). Most species with fernlike pinnate leaves are native of Indian subcontinent while phyllode bearing species are native of Australia and planted in modern social-forestry throughout India. They are dominant shrubs and trees mainly in dry deciduous forests and scrub jungles in the

State. Acacias are key species in bush land and savannah habitat, providing food and other resources for an enormous diversity of mammals, birds, and invertebrates, as well as stabilize the microclimate by given that gloom under which grasses grows and farm animals feed. Species of *Acacia* have ability to thrive under adverse conditions. Its value is in high quality of animal fodder, fuel wood, timber, gums etc., as well as contributing to soil stabilization and improvement through nitrogen fixation. It also plays important role in ethno medicines (Springuel and Mekki, 1993).

## MATERIALS AND METHODS:

### Study area:

Dandoba hill is a reserve forest in Miraj taluka of Sangli district. It is located between 16° 45' N and 17° 33' N latitude and 73° 41' E and 73° 42' E This hill range extends towards north to Miraj city (20 km). Dandoba hill is situated between 'Krishna' and 'Yerala' rivers of Miraj tehsil. The altitude of this basin varies between 600-900 meters from mean sea level and basin gradually slopes towards south east.

### Methodology:

A preliminary list of *Acacia* species for Maharashtra was prepared by referencing to all available literature. Intensive and extensive field explorations to different during the field visits, observations were made on distribution, phenology, present status, reproductive behavior and habitat of the *Acacia* species.

The taxonomic identity confirmed with the help of available literature Cooke (1901), Ahmedullah and Nayar (1986), Kamble and Pradhan (1988), Sanjappa (1991), Lakshminarasimhan and Sharma, (1991), Chakrabarty and Gangopadhyay (1996), Almeida (1998), Naik (1998), Matthew (1999), Singh and Karthikeyan (2000), Yadav and Sardesai, (2002), Garad (2013), Gaikwad *et al.* (2014a; 2014b), Ali (2014), Gore (2015), Gaikwad and Gore (2015), Gaikwad and Garad (2015).

## RESULTS

### Morphology and Medicinal value of *Acacia* genus:

#### 1) Botanical name- *Acacia nilotica* (L) Willd

- Vernacular name- Babool.
- Distribution- widely distributed in Maharashtra .

- Morphology- A small tree with dark brown or black longitudinally fissured bark, Pinnae 4-8 pairs and leaflets 10-25 pairs stipular spines, whitish, smooth, straight, sharp, flowers golden heads peduncles axillary in fascicles of 2-6 cylindrical, pubescent, bractioles-2, calyx- campanulate, corolla 1/8 inch long triangular. Pods stalked, moniliform, compressed and constricted. Seeds 6-10 brown polished.
- Medicinal uses - bark is astringent, anthelmintic, aphrodisiac, diuretic, expectorant and useful in hemorrhages, wounds, ulcers, chronic dysentery, skin disease, burning sensation. It is an excellent fodder for cattle (reading material SUK).
- Ethno botanical use- babool gum is used as healing material for lactating mother.

#### 2) Botanical name-*Acacia farnesiana* (L) Willd

- Vernacular name- Devbabool
- Distribution-common in dry region of Maharashtra
- Morphology-Large shrub, branching zigzag, leaves with minute glands, about the middle of petiole, stipular spines sharp, bipinnate leaf with 4-8 pairs of pinnae leaflets 10-20 pairs flowers sessile in globose heads, fragrant peduncles crowded on axillary nodes corolla yellow. Pods sub-cylindrical, turgid glabrous. Seeds dark brown compressed
- Medicinal uses-stem bark is astringent, the flowers are added to ointment rubbed on the forehead for headache, green pods are decocted for dysentery and dried pods for pain's

#### 3) Botanical name-*Acacia catechu* (L.F) Willd

- Vernacular name-Khair.
- Distribution-common in deciduous forest.
- Morphology-Moderate sized tree, bark dark coloured rough, leaves bipinnate, main rachis pubescent with large glands and large stipular spines short hooked from a broad triangular base pinnae 10-30 pairs. leaflets 20-25. flowers sessile pale yellow in peduncled, 1-4 pairs, axillary spikes. pods stalked flat thin brown shining. Seeds 3-10 compressed (cooks flora).
- Medicinal uses- (the gummy extract of wood is known as 'kath' (catechu) It is useful in the treatment of bronchitis, asthma, leukemia, dysentery, diarrhea. It is used in fungal activity, birth control, swelling in liver, blood clotting.
- Ethno botanic use-catechu is used in chewing betle leaf are canut and lime pest. catechu is the source to decrease flatulence of lactating mother.



Plate A: 1. *Acacia nilotica*, 2. *Acacia farnesiana*, 3. *Acacia catechu*, 4. *Acacia conciana*, 5. *Acacia leucophloea*, 6. *Acacia prosopis*, 7 & 8. Leaf morphology

#### 4) Botanical name-*Acacia leucophloea* Willd

- Vernacular name-Hivar
- Distribution-semiarid.
- Morphology-A tree with yellowish bark, branches dense, spreading. Leaf bipinnate, subsessile, main rachis pubescent, usually with a cup shaped gland between each pair of pinnae (spines variable in length). pinnae 5-15 pairs and leaflets 12-30 pairs crowded. Flowers large, terminal, tomentose. Pannicles, heads numerous, globos. Pods sessile, thin flat, sub indehiscent, slightly curved, clothed with pale brown tomentum. seeds 10-20.
- Medicinal uses-It is used as an astringent, for preventive of infections, as an anthelmintic,

expectorant and antipyretic, an antidote for snake bites and treatment of bronchitis cough, vomiting, wounds, ulcers, diarrhea, dysentery, internal and external hemorrhage.

- Ethno botanical use-bark is used in the distillation of spirit.

#### 5) Botanical name-*Acacia conciana* DC Prodr

- Vernacular name-Shikakai
- Distribution-common in Konkan and ghat jungles
- Morphology-extensive climbing shrub, armed with numerous small hooked prickles, branches brown dotted with white, leaves bipinnate, main rachis armed with sharp hooked priklles with a large gland.

pinnae 4-8 pairs, their rachis slender, grooved ending in a weak spine leaflets 12-25 pairs. flowers globos heads on peduncles. pods shortly stalked becoming wrinkled when dry somewhat depressed between the seeds with broad sutures seeds 6-10.

- Medicinal uses-It is used in jaundice, constipation. Pods contains saponins agent used as detergent it is useful in skin and hair problems also useful in treating cuts wounds and oral problems.
- Ethno botanical use-Traditionally used for washing the hair and bath.

# *A. conciana* is also used for poisoning the fishes.

### 6) Botanical name-*Acacia prosopis* D. Brandis

- Vernacular name-Vediana/ Vedibabul.
- Distribution-all over the Maharashtra –semiarid area (near about 45 varieties are present all over the India)
- Morphology-a shrub or small tree, bark more deeply cracked and exfoliating crown formed of twisted angular interlacing branches. Leaves bipinnate pinnae one pairs only spines usually white stout upto 2 ½ inches. long. flowers terminal panicle. pod flat shortly stalked broad little constricted between the seeds.
- Economic uses-animal fodder both pods and browse is of central important. wood is essential source of fuel.

### DISCUSSION:

In present study a total of 6 species *Acacia* have been recorded from Dandoba Hill, of which 5 taxa indigenous remaining ones is cultivated or naturalized in the study area. As most of these species are having ecological importance as well as ethno medicinal value they are cultivated by authors to study their cultural behavior and their biochemical composition in cultural conditions. *Acacia catechu* was most commonly recorded from the study area while *Acacia conciana* was rarely recorded from the study area.

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