



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research
Vol. 10, Issue, 12, pp.75908-75912, December, 2018

DOI: <https://doi.org/10.24941/ijcr.33400.12.2018>

**INTERNATIONAL JOURNAL
OF CURRENT RESEARCH**

REVIEW ARTICLE

DIVERSITY OF FAMILY CAPPARIDACEAE FROM DANDOBA HILL, MIRAJ MAHARASHTRA (INDIA)

*Sutar Kanchan

Department of Botany, S. M. Dr. Bapuji Salunkhe College, Miraj, Affiliated to Shivaji University, Kolhapur

ARTICLE INFO

Article History:

Received 30th September, 2018
Received in revised form
09th October, 2018
Accepted 10th November, 2018
Published online 29th December, 2018

Key Words:

Cadaba, *Capparis*,
Capparaceae, Dandoba hill,
Diversity, Survey,
Rare Plants, Medicinal uses.

Copyright © 2018, Sutar Kanchan. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Sutar Kanchan. 2018. "Diversity of Family Capparidaceae From Dandoba Hill, Miraj Maharashtra (India)", *International Journal of Current Research*, 10, (12), 75908-75912.

ABSTRACT

Dandoba hill which is also known as Dandakaranya is famous for the temple of lord Shiva covered by unique flora. This forest is conserved for its bioasthetic value. There occurs great diversity among the Angiosperms. Present work is a piece of taxonomic work based on critical field studies of members of family Capparaceae from Dandoba hill. Amongst the members of family Capparidaceae, the genus *Capparis* and *Cadaba* were recorded commonly from the study area which might be, due to the typical dry environment of the study area. Genus *Capparis* commonly known as 'Caper'. Members of this genus showed variation in their habit ranging from small trees, climbers upto the large shrubs. Members of genus *Cadaba* were small shrubs. During the present study, four species of *Capparis* and one species of *Cadaba* were collected and identified. Their morphological descriptions, notes on identifications, present ecological status and medicinal importance were also cited.

INTRODUCTION

Genus *Capparis* which is also referred as 'Caper' which is a dominating genus of family Capparidaceae. *Capparis* species are xerophytic. They occur in a various range of climatic conditions such as, dry deserts to cooler terrains, of mountains. Either shrubs, wood climbers or small trees. Some *Capparis* species' flowers are used in vegetables and fruits are also used in pickle production. The edible species of *Capparis* have high nutrition ingredients like proteins, carbohydrates, minerals and vitamins. The parts of *Capparis* plant is used in different types of diseases. In the *Capparis* species of present paper is used in spasmolyte, antidote to snakebite, earache, mumps, curing drcopsygout, aphathae, cure swelling eruptions (S. N. Mishra *et al* 2006)*Capparis* is the cosmopolitan genus comprising about 350 species. Capparidaceae family is closely related to Brassicaceae (Hall *et al* 2002, Inocencia 2006) family contains 33 genera and about 700 species. *Capparis* is created and described by, Carolus Linnaeus in his book 'Species Plantarum' (Inocencia *et al* 2006). In India, 7 genera and 53 species occur in western and south India and few in tropical Himalayas. The flowers of capper family are solitary and in fascicles of three or four but more commonly racemose.

Flowers bisexual, actinomorphic or zygomorphic usually with four sepals arranged in two series and four free petals but, occasionally they are found in two. Ex. *Cadaba*. Androecium is four to numerous and free. (Eflora of India) *Capparis* plants are useful in afforestation and reforestation. They can stop soil erosion and preserve land. In the studied area recorded, four species of genus *Capparis* and one species of genus *Cadaba* belong to same family Capparidaceae. In the Capparaceae (Capparidaceae) *C. divaricate*, *C. cepiara*, *C. zeylanica*, *Cadaba* are the larval host plants. (Butterfly host plant) (<https://www.ifoundbuterflies.org/> larvalhostplants)*Capparis* plants are highly adapted for xerophytic condition and contribute to environmental balance. But some species of *Capparis*, due to destruction of habitat are becoming rare. Few are seriously threatened and if we are not able to maintain the habitat few species can be extinct. By making the law, we cannot be able to maintain the biodiversity and could not ensure the protection and conservation of plants without strong public support. Uptill the involvement, interest and need of local people are considered the conservation of plants is not possible.

MATERIALS AND METHODS

Study area: Dandoba hill is a reserve forest in Miraj taluka of Sangli district. It is located between 16^o 45' N and 17^o 33' N latitude and 73^o 41' E and 73^o 42' E This hill range extends towards north to Miraj city (20 km).

*Corresponding author: Sutar Kanchan,
Department of Botany, S. M. Dr. Bapuji Salunkhe College, Miraj,
Affiliated to Shivaji University, Kolhapur.

Dandoba hill is situated between 'Krishna' and 'Yerala' rivers of Miraj tehasil. 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 *Capparis* 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 *Capperidaceae* species. The taxonomic identity with the help of available literature Cook (1901), Lam (2016), Yadav and Sardesai (2002), G. D. Mahajan (2009), Ingalthalikar (2007), K. R. Sini (2011), R. V. Hivare (2016), Wikipedia. Hassan-Ahdallah (2013), (Halletal (2002), Inocencia *et al* (2006)) Jafri (1954)

RESULTS

Morphology and medicinal value of *Capparis* and *Cadaba* genus.

Botanical name- *Capparis sepiaria* Linn: Common name-wild Caper bush. Vernacular name- Kanthar Distribution-common in dry parts of the presidency. Morphology- Plant is much branched, densely armed, twigs zigzag, flexuous (Flora of India), Woody climber, young shoot more or less pubescent (cook), occasionally ash white, stipular thorns recurved. Leaves alternate, 3-8 cm elliptic oblong, obtuse, volvety tomentose, petiole 2-4 mm, stipular spines hooked, midrib slightly sunken at base above lateral nerves, 4-6 pairs with obscure reticulation. Flowers in dense, short peduncles or sessile umbels, pedicels 1-2 cm, flowers white, half-one cm, gynophore on and half cm long, filiform ovary ovoid, pointed, globose. Stamens 24-30 in number, two cm long. Fruit is 2-3 cm, globose, smooth, black when ripe (Cook). Seeds embedded in pulp (Bot. Survey of India). Flowers and fruits feb-sept. (Bot. Survey of India). Medicinal uses-Anti microbial properties (Ahmad-cited by 1185) In Tanzania fruit powder is taken in tea to treat Anthrax and Cancer and used to treat fever, lever disorders and diarrhoea and as alternative as tonic (PROTA). Leaves are local source of food, seeds are used in antidote to snakebite, root is used for earache and mumps. Stem, root bark, are used in curing dropsy, gout, aphathae (S.N. Mishra *et al* 2006).

Botanical name- *Caparis zylanica* Linn: Common name-Ceylon caper. Vernacular name- Vaghati, govind phal. Distribution- common in the scrub jungles and dry deciduous forests. Morphology- Plant 2-5 m climbing, glabrescent, shrubs, stipular spines, hooked, much branched shrub, densely covered with rufous or greyish stillate scurfy, deciduous tomentum. Leaves coriaceous (1 ½ to 2 ½ inch), elliptic or broadly lanceolate, acute or obtuse, callous, tipped glabrous on both surfaces. Shinning above, rufous, pubescent beneath. Prominently reticulate veined, base sub-acute or rounded petiole (1/8 part), stipular thorns, short, straight, lateral nerves, 4-8 pairs reticulation, distinct. Flowers- (1 ¾ to 2 inch) auxiliary, solitary or 2-3 together on shoot pedicels slender 1-1 ½ inch. Sepals four nearly sub equal, oblong, concave, greenish, tomentose. Petals 7/8 inch long, obtuse, undulate. The lower pair spreading four petals white and turning to dark pink while fading.



1 A & B- *Capparis sepiaria*



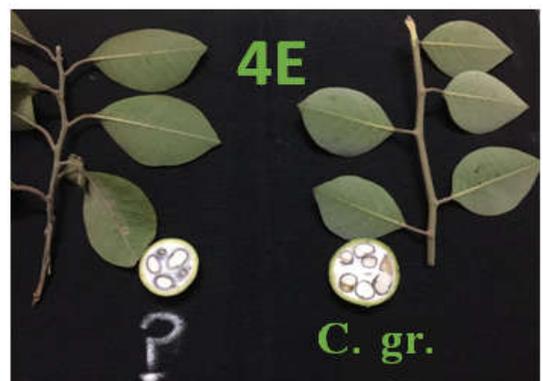
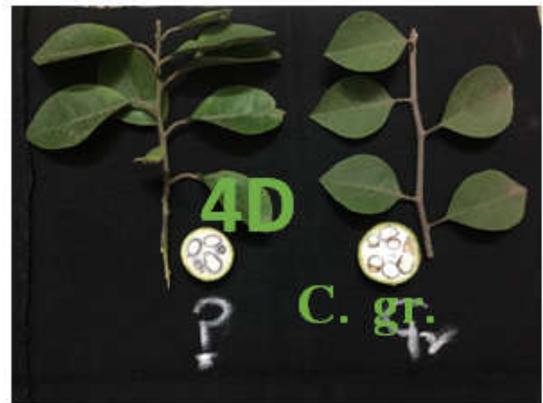
2A- *Capparis zeylanica*



2B. *Capparis zylanica* flower



3 A & B- *Capparis divaricata*



4 A&B- *Capparis grandis* 4 C- suspected as grandis 4 D&E- distinguishing into *Capparis grandis* and suspected as *C. grandis*



5- *Cadaba indica*.

Gynophore- $\frac{1}{2}$ - $\frac{3}{4}$ inch long ovary, oblong. Stamens- many (2- $2\frac{1}{2}$ inch) long, twice as long as petals, white turning pink to purple. Fruits- 2-2 $\frac{1}{2}$ by $\frac{1}{2}$ inch pointed or globose to ellipsoid, blunt, red when ripe. Seed- numerous embedded in a white fetid pulp. Flowering- feb-april, fruiting- aug-sept. Medicinal uses- unripe fruits are pickled and ripened once are edible and for the treatment of diabetes. It is used in treating jaundice, liver ailments and even tuberculosis. Antidote to snakebite, anti-arthritis (rheumatism and gout), anti-inflammation uses (<https://books.google.co.in/books>). *C. zeylanica* is immunostimulant activity (A. Lather *et al*). Leaves are used in improving the appetite, it is used in curing ulcers. Local uses in severe headache, cough, cold, nasal congestions, throat infections. Stem and leaves are used in spasmolyte and fruits are used in antidote to snakebite. (Mishra S. N. *et al* 2006).

Botanical name-*Capparis divaricata* Lam

Common name- Spreading caper.

Vernacular name- pachunda.

Distribution- Common in scrub forests in plains.

Morphology- A much branched shrub or small tree, bark is very rough, brown, deeply cleft. Leaves- Simple alternate, $1\frac{1}{4}$ - $2\frac{1}{2}$ by $\frac{3}{8}$ - $\frac{3}{4}$ inch, 5-7 nerved from the base, narrow, ablong, obtuse or retuse, rarely acute, mucronate, rounded at the base, the young leaves tomentose, the older glabrous, petiole- $\frac{1}{8}$ - $\frac{3}{16}$ inch long, stipular thorns, stout, straight or slightly curved (hooked). Flowers- $2\frac{1}{4}$ inch in diameter, axillary, solitary, greenish, buds beaked, pedicel $\frac{1}{2}$ - $\frac{3}{4}$ inch long, stout, tomentose, sepals- ovate, acute. Flower white-creamy, turns entirely into pink/purple. Gynophore- $\frac{3}{4}$ inch long, stamens- many $1\frac{1}{2}$ inch long, filaments - yellow turning reddish brown when old. Ovary- Glabrous, ribbed. Fruit- 2 inch in diameter, sub globose, scarlet or red at maturity, 5-6 ribbed obtusely beaked, seated on the elongated and greatly thickened gynophore. Flowering- Feb-april. Medicinal uses- The fruits, roots, and seeds of capparidaceae have been used traditionally as anti-rheumatic tonic, expectorant and analgesic agents in Turkey and other countries. (www.irjponline.com).

Botanical name-*Capparis grandis* Linn

Common name- tree caper

Vernacular name- pachundi.

Distribution- On rocky soil, dry forests from plains (up to 1100m)

Morphology- A small tree, a young shoot covered with olive green tomentum, bark is crooked, fissured. Leaves- 1- $2\frac{1}{2}$ by 1- $1\frac{1}{2}$ inch, elliptic- of obovate, obtuse (rarely retuse), sometimes mucronate, the younger clothed with olive green, velvety, pubescence, the older sub glabrous except the midrib, petiole- $\frac{1}{4}$ - $\frac{1}{2}$ inch long, stipular thorns, usually absent, many flowered, densely pubescent, corymbs or sometimes in racemes, the lower pedicels of which are supplying with stalked, leafy, the upper with small, deciduous bracts, pedicels- $\frac{3}{4}$ - 1 inch long. Sepals- the outer $\frac{1}{4}$ - $\frac{5}{6}$ inch long, covered with olive colored pubescence outside, boat shaped valvate, the inner broadly elliptic, ciliate petals, oblong- obovate, the surface pubescent. Petals- white-creamy. Stamens- 35-50 in number, filaments white, 3cm long. Gynophore- usually $\frac{3}{4}$ - 1 inch long, sometimes only $\frac{1}{8}$ inch ovary ovoid, very acute, glabrous. Fruit- the size of nutmeg- subglobose, purple, smooth, 2-6 seeded. Flowering- throughout the year with peak period in feb-july and nov- dec. Medicinal use- bark and leaf cure swelling eruptions. Fresh leaves are cooked and used as vegetable soup to treat skin eruptions fresh leaves are crushed and the pulp as applied to insect bite (<https://www.flowersindia.net>) (Mishra S. N. *et al* 2006)

Botanical name *Cadaba indica* Lam

Synonym- *Cadaba fruticosa* (L.) druce.

Common name- Indian cadaba.

Vernacular name- kadaba.

Distribution- in scrub forests.

Morphology- plant much branched shrub, stem teret, the older smooth purplish, the younger pubescent, yellowish brown. Leaves simple, entire $\frac{3}{4}$ - $1\frac{1}{2}$ by $\frac{3}{8}$ - $\frac{1}{2}$ inch elliptic, oblong, obtuse, (rarely retuse), macronate, reticulately veined, glabrous, base rounded, petiole $\frac{1}{10}$ - $\frac{1}{6}$ inch long. Flowers dirty white, in few flowered terminal, once sided racemose, the upper flowers corymbose, pedicels $\frac{3}{8}$ - $\frac{3}{4}$ inch long, pubescent bract, one at the base of each pedicel, flowers zygomorphic, sepals sub equal ovate, oblong, acute, exceeding half inch long pubescent outside. Petals spatulate, about equaling the sepals, claw long, very narrow. Disk prolonged into a funnel shaped process, $\frac{3}{8}$ inch long expanded and toothed at the apex, mouth oblique. Stamens four inserted about half way up the gynophore, much exerted. Gynophore $\frac{3}{4}$ - $\frac{7}{8}$ inch long ovary oblong, style zero, fruit dehiscent 1-2 inch by $\frac{1}{8}$ inch cylindrical, irregularly, torulose, pubescent or smooth. Seeds numerous, striate, surrounded by an orange red aril. Flowering - nov-march/May. Medicinal uses-used in various chronic ailments, known to be effective for prolonged period, the leaves and fruits are used in anthelmintic and immunagogue and are prescribed in the form of a decoction for treating uterine obstructions. Leaves of Indian cadaba are also used a poultice to promote healing of sores. The leaf and fruit are used to treat worm infections, swelling, eczema and constipation. (m.indianetzone.com) (www.indianetzone.com) Ecological role- cadaba is planted for soil stabilization.

RESULTS AND DISCUSSION

Out of total five species, belonging to family capparidaceae were recorded from, Dandoba hill, Miraj. Four species were represented by one genus capparidaceae. And one species was represented by another genus cadaba. In the present study area out of five species *Capparis cepiaria* has occurred densely. It has great variations in their size. I came across differentiation

between two varieties of *C. zelanica* 1) Leaves are obtuse and have four pairs of lateral nerves and the size of fruit is 2 by 1 inch. Leaves are acute and have five pair of lateral nerves and the size of fruit is 1/3 by 1/2 inch.

In the studied area we have observed one suspected and related variety of *C. grandis*. This variety is comparatively taller than *C. grandis*. Its flowers have more stamens which are near about 70-80 in number. While the flowers bloom, the filaments are curly/wavy. Inflorescence in simple racemose but are left with only 2-3 fruits. Seeds are 3-4 in number. These trees are rarely found and some are in destructed condition. *Cadaba indica* have occurred rarely in the represented family. Not a single plant of *Capparis aphylla* was noticed at the studied area.

Acknowledgement

Author is thankful to Shri Swami Vivekanand Shikshan Sanstha.

REFERENCES

- Anticancer activity of *C. divaricata* Lamm leaves extract
Capparis sepiaria (PROTA) Plant use- [https://usesplantnetproject.org/capparis\(21july2015\)](https://usesplantnetproject.org/capparis(21july2015))
- Eflora of India- botanical survey of India/ Flora of India.
Halletal 2002. Inocencia *et al* (2006), Jafri (1954)
- <http://www.ifoundbutterflies.org/larvahostplants>
<https://books.google.co.in/books>
<https://m.indianetzone.com>
<https://www.flowersindia.net>
Lather A. Chaudhari, Gupta A., Bansal V., Bansal P.,
<https://internationaljournal.2010.cabdirect.org>
Maslin BR, Miller J and Seigler DS/ 2003. Overview of generic status of Cappardaceae.
Mishra S. N., Tomar P C and Lakra N., 2006. medicinal and food value of capparid- a harsh terrain plant, Indian journal of traditional knowledge, 6 (1)
Springuel I and Mekki AM, 1993. *Economic value of desertplants.vol.* Capparis trees of Wadi Allaqi Conservation Area. Pp. 20. The International Plant Names Index (IPNI) 2012. Accessible at <http://www.ipni.org/>. Accessed on 30 sept. 2013
www.indianetzone.com
www.irjponline.com/uploads-2335pdf
www.niscair.res.in/ijtk.fulltextsearch
www.plantayurveda.dot.com.library
Yadav S. R. and Sardesai MM, 2002. *Flora of KolhapurDistrict.* Shivaji University, Vidyanagar, Kolhapur (MS) India.
Zeylanica *C.* is immunostimulant activity, phytochemistry and pharmacological activities.
