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Traditional practices and biotic interference in Nasik District (Maharashtra: India): A review

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Abstract
Nasik district is inhabited by tribal and non-tribal people. They are mostly agrarian communities. The tribals have to depend partly on forest produce. Tribal cultures are rich repositories of valuable traditional practices. The life of tribals is intricately woven around forests. Total 45 angiospermic species pertaining to 37 genera and 25 families brought in sharper focus in view of conservation. Some tribal practices are highlighted which are responsible for precarious condition of biodiversity. These traditional practices and their consequences are projected suggestive of probable biodiversity loss in near future if these trends continue in future.

Keywords: Traditional practices, ethnobotany, biodiversity loss, Nasik District

Introduction

The district of Nasik in north-western part of Maharashtra is situated between 19°3' and 20°52' north latitude and 73°16' and 74°56' east longitude. The district is divided into 13 revenue tehsils. It is bounded on the north-west by Dangs and Surat districts of Gujarat state, on the north by Dhule district, on the east by Jalgaon and Aurangabad (presently Chhatrapati Sambajinagar) districts of Maharashtra State. The ranges of Western Ghats extend in the district. The basalts are the most conspicuous geological feature. Nasik district is drained by two main rivers *viz.*, Girna and Godavari. It is mainly monsoon fed region and, on an average, received rains for 51 days. The forests belong to main types *viz.*, (i) West Coast Semi-Evergreen Forests and (ii) South Indian Moist Decidous Forests. Apart from non-tribal population, some tribes inhabit the district especially Bhils, Kokanis, Katkaris, Mahadev Kolis and Warlis. The mainstay of non-tribals is the agriculture. However, the tribals partly depend on forest produce.

Methodology

The district is botanised ethnobotanically. The plant-wealth of ethnobotanical interest is determined by using floras by Cooke (1958) [1], Sharma *et al.*, (1996) [4], Singh *et al*. (2000, 2001) [5, 6], Lakshminarsimhan and Sharma (1991). The information is obtained in different seasons w.r.t. vernacular plant name, part used for medicine and other miscellaneous purposes. The present account is focused on traditional practices which have largely shown biotic interference in the district.

Systematic Enumeration

1. Underground Parts

1.	*Arisaema murrayi* (Grah.) Hook. (Araceae) Nagphani Use: Tubers are boiled and consumed.
2.	*Costus speciosus* (Koen.) J.E.Sm. (Zingiberaceae) Pewati Use: Tubers are crushed and used to stupefy fishes.
3.	*Curcuma pseudomontana* Graham (Zingiberaceae) Shilandh Use: (i) Entire inflorescences are collected and sold at Trimbakeshwar for offering to Lord Shiva. (ii) Rhizome is also cooked and consumed.
4.	*Dendrocalamus strictus* (Roxb.) Nees (Poaceae) Bamboo Use: Young shoots (buds) are boiled and consumed as vegetable.
5.	*Dioscorea bulbifera* L. (Dioscoreaceae) Kadu-Kand Use: Tubers are boiled and consumed.
6.	*Dioscorea hispida* Dennst. (Dioscoreaceae) Wachkand Use: (i) Tubers are boiled and cosnumed. (ii) Tubers are also added in fermentation while preparing alcohol.
7.	*Pancraticum sanctae-mariae* Blatt. & Hallb. (Amaryllidaceae) Pachan-kand Use: Bulbs are sliced and placed in rice field on a stick to prevent crop diseases.
8.	*Pueraria tuberosa* (Willd.) DC. (Papilionaceae) Bendar-kand, Kahalvel Use: (i) Flour obtained from tubers is used in bread preparation. (ii) Tubers are mixed in fodder and fed to domestic animals against flatulence.
9.	*Tacca leontopetaloides* (L.) Oktze. (Taccaceae) Use: Tubers are cooked or roasted and consumed.

2. Leaves

1.	*Butea monosperma* (Lam.) Kuntze. (Papilionaceae) Palas Use: Leaves are used to make dinning plates and bowls.
2.	*Dioscorea oppositifolia* L. (Dioscoreaceae) Chaikan Use: Leaves and bulbils are cooked and consumed as vegetable.
3.	*Dioscorea pentaphylla* Linn. (Dioscoreaceae) Tamboli, Ulshi Use: Leaves are cooked and consumed as vegetable.
4.	*Diospyros melanoxylon* Roxb. (Ebenaceae) Temburni Use: Leaves are used for bidi-wrapping and sold in markets.
5.	*Schleichera oleosa* (Lour.) Oken. (Sapindaceae) Kusum, Koshimbi Use: Leaves are used for thatching roofs and huts.
6.	*Schrebera swietenoides* Roxb. (Oleaceae) Mokha Use: Tender leaves are cooked and consumed as vegetable.
7.	*Flacourtia indica* (Burm.*f*.) Merr. (Flacourtiaceae) Galgugger Use: Leaves are fed to goats.
8.	*Grewia tiliaefolia* Vahl (Tiliaceae) Dhaman, Rodgi. Use: Leaves are fed to goats.
9.	*Hardwickia binata* Roxb. (Caesalpiniaceae) Anjan Use: Leaves are fed to milking cows and buffaloes.

3. Flowers

1.	*Arisaema murrayi* (Grah.) Hook. (Araceae) Nagphani Use: Core of inflorescence axis is consumed as vegetable.
2.	*Dioscorea oppositifolia* L. (Dioscoreaceae) Chaikan Use: Young inflorescence is consumed raw.
3.	*Dioscorea wallichi* Hook. *f.* (Dioscoreaceae) Chaichamur Use: Inflorescence of female flowers is used as vegetable.
4.	*Ensete superbum* (Roxb.) Cheesm. (Musaceae) Rankela Use: Core of inflorescence axis consumed as vegetable.

4. Fruits

1.	*Capparis zeylanica* L. (Capparidaceae) Waghati, Govindi Use: Fruits are cooked and consumed as vegetable.
2.	*Dioscorea pentaphylla* Linn. (Dioscoreaceae) Tamoli, Ulshi Use: Young fruits are used as vegetable.
3.	*Dioscorea wallichi* Hook. *f.* (Dioscoreaceae) Chaichamur Use: Young fruits are consumed as vegetable.
4.	*Meyna laxiflora* Robyns (Rubiaceae) Aliv Use: Ripe fruits are consumed.
5.	*Milliusa tomentosa* (Roxb.) J. Sinclair (Annonaceae) Humb. Use: Ripe fruits are cherished.
6.	*Morinda pubescens* J. E.Sm. (Rubiaceae) Ali Use: Ripe fruits are consumed.

5. Seeds

1.	*Sterculia urens* Roxb. (Sterculiaceae) Kudal Use: Seeds are de-coated and consumed raw.

6. Entire Plants

1.	*Butea superba* Roxb. (Papilionaceae) Palasvel, Vadha Use: (i) Entire lianas are used for fastening in case of hut construction. (ii) Fibre is also obtained from the stem axis and used for various purposes.
2.	*Caralluma adscendens* (Roxb.) R.Br. (Asclepiadaceae) Vanjari Bhaji Use: Entire plant is fleshy and succulent. It is pickled or used for preparing chutney.
3.	*Carvia collosa* (Nees) Bremek. (Acanthaceae) Carvi Use: (i) Stems are used for walls and roots of nuts. (ii) Stems also used as hedge around farmyards. (iii) Leaves are used to prepare beds for onion storage in sheds.
4.	*Dendrocalamus strictus* (Roxb.) Nees (Poaceae) Bamboo Use: (i) Green culms (stem axis) cut and used as walking sticks. They are sold in markets at religious places. (ii) Culms are used for construction of huts. (iii) Culms are also used for food grain containers.
5.	*Babmusa arundinacea* (Retz.) Willd. (Poaceae) Bamboo. Use: Fibre is obtained from entire culms (stem axis) and used for various purposes.

7. Timber

1.	*Acacia ferruginea* DC. (Mimosaceae) Vichan Use: Wood is used for making bullock-cart wheels and agricultural wheels.
2.	*Lagerstroemia parviflora* Roxb. (Lythraceae) Bondara Use: Wood is used for hut construction and agricultural implements, besides as fuel wood.
3.	*Lannea coromandelica* (Houtt.) Merr. (Anacardiaceae) Modhal Use: Wood is used for door frames and drums.
4.	*Mitragyna parvifolia* (Roxb.) Korth. (Rubiaceae) Kalamb Use: Wood is used for hut and house construction.
5.	*Morinda pubescens* J.E.Sm. (Rubiaceae) Ali Use: Wood is used for huts and shades, besides agricultural implements.
6.	*Schleichera oleosa* (Lour.) Oken. (Sapindaceae) Kusu, Koshimb Use: Wood is used for house construction
7.	*Terminalia chebula* Retz. (Combretaceae) Hirda Use: Wood is used for agricultural implements.

8. Fodder

1.	*Mitragyna parvifolia* (Roxb.) Korth. (Rubiaceae) Kalamb Use: Leaves are fed to cattle.
2.	*Prosopis cineraria* (L.) Druce (Mimosaceae) Saundal Use: Pods are used as cattle fodder.
3.	*Terminalia chebula* Retz. (Combretaceae) Hirda Use: Leaves are used as fodder for cattle.
4.	*Ficus arnottiana* (Miq.) Miq. (Moraceae) Khadak-payer Use: Leaves are fed to goats and cattle.
5.	*Flacourtia indica* (Burm.*f.*) Merr. (Flacourtiaceae) Galgugger Use: Leaves are fed to goats.
6.	*Grewia tiliaefolia* Vahl. (Tiliaceae) Dhaman, Rodgi. Use: Leaves are fed to goats.
7.	*Hardwickia binata* Roxb. (Caesalpiniaceae) Anjan Use: Leaves are fed to milking cows and buffaloes.

Results and Discussion

Nasik district was investigated floristically by Lakshminarasimhan and Sharma (1991) [2]. They paid a cursory attention to plant uses. Patil and Patil (2006) [3] inventorised this district ethnobotanically. During this inventory, traditional practices in the district about exploitation of plant diversity are recorded. It appeared that some of the traditional practices are so severe that lead the individual plant species to a precarious condition. The plant species which are particularly wild in nature were focused, the information of which is limelighted in this communication.

Various plants and their parts are being used by the indigenous tribal and even non-tribal people for their daily necessities of life since time immemorial. The biodiversity is generally said to be quite rich in our country. However, the diversity is minimized due to modern activities of mankind in the name of developments, ecological imbalance over-exploitation and certain natural calamities. Moreover, human population whether tribal or non-tribal has increased in the past centuries. This trend obviously exerted high pressure on local biodiversity. In such circumstances, it become imperative to take stock of current situation about biodiversity destruction or depletion.

Plant parts, whether underground or aerial are exploited by the local inhabitants for various purposes. As far as,

underground plant parts, the tubers, rhizomes, young underground sprouts and bulbs are utilized on large scale. To meet needs for his immediate purpose, these are collected but while doing so, entire plants are unrooted and thrown outside their habitats. This practice truly helps reduce the populations of the concerned plant species. As many as 09 plant species belonging to 08 genera, 07 families have been observed in respect of the traditional practice. There are being utilized for mostly human consumption and also for liquor preparation and prevention crop diseases. During this inventory, very few individual plants are noted surviving. The further exploitation may lead these taxa to depletion from the said region.

Leaves are important organ of the plants. They conduct photosynthesis and provide nutrition. If the leaves are striffed off on large scale, they cause severe damage to the individual plant species. As many as 06 plant species pertaining 05 genera and 05 families are utilized for various purposes e.g. dinning plates and bowls, human consumption, bidi-wrapping and thatching.

Flowers constitute an essential plant part for reproduction of plant species. Flowers or even entire inflorescence axis are collected and consumed raw or used as vegetable. Total 04 plant species pertain to 03 genera and 03 families of angiosperms. This practice directly have negative effect on plant reproduction and even depletion of the concerned taxa.

Another important plant structure are fruits. These are also victim of human greed. They are consumed when ripe or used as vegetable. Total 06 species of 05 genera and 05 families are recorded for the aforesaid purposes. This traditional practice has direct bearing on natural plant dispersal. It affects natural regeneration in home places of the said plant species. Interestingly, seeds of *Sterculia urens* Roxb. consumed raw by the local people. This also affects propagation in its natural habitat.

People of Nasik district root out entire plants in big numbers for various purposes e.g. hut construction, human consumption, hedging, grain containers, etc. During removal of a part, entire plants are thrown out and thus wasted. Some species are on the verge of extinction e.g. *Caralluma adscendens* (Roxb.) R.Br., which is leafless species. Entire plant constitutes a fleshy stem-axis and consumed for vegetable. The case of *Carvia callosa* (Nees) Bremek is monocarpic and biologically rather unique. It flowers and fruits after 7-9 years in its life-time and then entire plants are out of scene. Its populations has decreased in this region because of large scale collection for the purpose mentioned. Total 05 plant species belonging to 05 genera and 04 families are commonly employed which need urgent attention. The people particularly tribal ones depend largely for hut and house construction, agricultural implements etc. on timer from the forest trees. Entire trees species are cut down. This results in severe destruction of forests. After timber, fodder for domestic animals is another major necessity of these people. They collect leaves and pods on large scale daily. As many as 07 species pertaining to 07 genera and 07 families are generally exploited.

The people of Nasik district have been following these traditional practices over centuries. Earlier, human population was comparatively minimum and the forests were rich. The people used the plant-wealth in sustainable manner. The present scenario is certainly contradictory and cannot replenish the natural wealth. The inhabitants of this districts should be made aware of their traditional practices to save the natural heritage on which they are dependent.

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