



**ETHNOBOTANICAL USES OF PLANTS FROM FAMILY
SOLANACEAE USED BY KOKNI TRIBAL OF NASIK AND DHULE
DISTRICTS OF MAHARASHTRA**

Dr. Sachin Dadaji Kuvar

Assistant Professor,

Department of Botany,

Siddharth College of Arts, Science & Commerce, Fort, Mumbai, Maharashtra,

India

ABSTRACT:

The Nasik and Dhule districts of Maharashtra state are incredibly diverse in terms of both their flora and their ethnic composition. Tribal people with extensive traditional knowledge of plant resources lives in the Nasik and Dhule areas are using plant wealth since time immemorial. The ethnobotanical surveys were carried out in the Nasik and Dhule districts during September 2021 to March 2023, to examine and record the plants employed by the Kokni tribe in their life. The Kokni tribe of Nasik and Dhule districts makes use of these plants in a variety of ways as food, medicine and other rituals purposes. This variety of data could make a significant contribution to government policies or modern drug development schemes that improve cutting-edge, new drug design systems in rural, folkloric locations and boost advanced formulae involving native medicinal plants. The use of medicinal plants is still common in rural and tribal communities. This rich heritage of traditional knowledge should be maintained and gathered in order to aid in the understanding of plant metabolites that have therapeutic properties, the creation of new herbal medicines, and the advancement of humankind. During the present survey ethnobotanical information on 11 plants from family Solanaceae was collected from the Kokni tribal of Nasik and Dhule district. Every species is described in detail, including its proper citation, plant characters, local name, GPS position, flowering and fruiting seasons, and medicinal and commercial significance.

Keywords: *Solanum, Kokni, Nasik, Dhule, Maharashtra, Solanaceae.*

INTRODUCTION:

The study of plants used by early humans is known as Ethnobotany. In Ethnobotany, research is conducted among rural and tribal populations to document their distinct knowledge of the riches of plants and to find new sources of herbal remedies, edible plants, and other plant-related information. Following in the footsteps of early naturalists who documented how prehistoric cultures used plants for potential integration into their native economies, botanists have been conducting ethnobotanical investigations. The Kokni tribal people live in various areas of the districts of Nandurbar, Palghar, Dhule, and Nasik in Maharashtra. It is one of the major tribal community in Maharashtra. The Kokni tribe left the Konkan region of Maharashtra during the 1396–1408 famine. The reason behind the name of this tribal community is armband worn called as Kankan by the tribal women.

Over 2000 species and 90 genera make up the enormous and diverse Solanaceae family of plants, shrubs, and herbs. It is well known that the Solanaceae family has a wide variety of alkaloids. These are the strongest known anticholinergics for therapeutic purposes; that is, they block the brain signals that the endogenous neurotransmitter acetylcholine transmits. The following genera have medicinally significant species from the Solanaceae family: *Solanum*, *Atropa*, *Capsicum*, *Datura*, *Withania*, *Hyoscyamus*, *Nicotiana*, and miscellaneous. Across the nation, these species are widely utilised for medical purposes. The Solanaceae family is typified by its ethnobotanical nature, meaning that humans use it extensively. It is a significant source of medicine, food, and spices. The Solanaceae family has a wide variety of alkaloids that can be extremely dangerous in tiny doses to both people and animals, causing mild irritation to death. The Solanaceae family is typified by its ethno-botanical nature, meaning that humans utilize it widely. It is a significant supplier of food, spices, and medications. On the other hand, Solanaceae species are abundant in alkaloids, which can be extremely hazardous to people and animals in tiny doses, ranging from slightly irritating to lethal. The Solanaceae family continues to be the focus of historical taxonomy research due to its great diversity and advantageous qualities for humans.

MATERIALS AND METHODS:

Different tribal localities of Nasik and Dhule district were surveyed during the ethnobotanical research work on Kokni tribal during the year 2017 to 2020. The information on the uses of plants belonging to family Solanaceae was

collected from tribal people of these districts. The digital photos of the plant were taken in their natural habitat and plant specimens were collected for proper authentication. The fresh specimens were compared with the earlier collected herbarium from different parts of country for authentication in Blatter herbarium, St. Xavier's College (Autonomous), Mumbai, Maharashtra. The plants Global Position System (GPS coordinates) location was also recorded for further reference. The plant specimens were preserved and housed in Blatter herbarium, St. Xavier's College (Autonomous), Mumbai, Maharashtra for further references.

OBSERVATIONS:

Datura innoxia Mill., Lakshminarsimhan & Sharma, Fl. Nasik 334, 1991; Almeida, Fl. Maharashtra 3B: 359, 2001; Singh *et al.*, Fl. Maharashtra State 2: 495, 2001; Patil, Fl. Dhule and Nandurbar Districts 416, 2003.

Plant characters: Herbs or undershrubs. Leaves ovate, unequal sided at base, obscurely sinuate, dentate, or sometimes entire, softly pubescent, rarely with shallow lobes. Flowers white, solitary in the fork of branches. Capsules globose, clothed with spines. Commonly grows on wasteland.

Local name: Dhotra

Fl. & Fr.: September to March.

GPS coordinates: 20°49.532'N and 74°5.47'E

Exsiccata: SDK – 26, 348, 584

Uses: Root extract is used to cure Kidney stone. Root is crushed in goat's milk and applied on boils. Leaf powder is used to cure asthma and applied on boils.

Datura metel L., Lakshminarsimhan & Sharma, Fl. Nasik 334, 1991; Almeida, Fl. Maharashtra 3B: 360, 2001; Singh *et al.*, Fl. Maharashtra State 2: 496, 2001; Patil, Fl. Dhule and Nandurbar Districts 417, 2003.

"Kala dhotra"

Plant characters: Undershrubs. Leaves broadly ovate lanceolate, deeply toothed, often lobed, rarely entire base unequally truncate. Flowers white or purplish. Common in wasteland and in fields.

Local name: Kala dhotra

Fl. & Fr.: July to March.

GPS coordinates: 21°5.138'N and 74°2.581'E

Exsiccata: SDK – 49, 389, 566

Uses: Leaf paste is applied on boils and forehead to cure headache. Edible oil is applied on leaves and tied on boils till cure. Leaves are smoked as narcotic by tribal.

Nicandra physalodes (L.) Gaertn., Lakshminarsimhan & Sharma, FI. Nasik 335, 1991; Singh *et al.*, FI. Maharashtra State 2: 497, 2001; Patil, FI. Dhule and Nandurbar Districts 418, 2003. (Photoplate No. 36)

Plant characters: Erect, glabrous, branched herbs. Leaves ovate oblong or elliptic oblong, lobed or toothed, membranous, glabrous. Flowers axillary, blue white, bell shaped, solitary, pedicellate. Berries globose. Occasionally found in cultivated fields and along road side.

Local name: Ran popati

Fl. & Fr.: September to April.

GPS coordinates: 20°48.152'N and 74°2.732'E

Exsiccata: SDK – 65, 349, 483

Uses: Seeds are wrapped in *Bauhinia racemosa* L. leaves and smoked to reduce throat pain. Fruits are eaten by tribal.

Physalis minima L., Lakshminarsimhan & Sharma, FI. Nasik 336, 1991; Almeida, FI. Maharashtra 3B: 370, 2001; Singh *et al.*, FI. Maharashtra State 2: 499, 2001; Patil, FI. Dhule and Nandurbar Districts 420, 2003.

Plant characters: Herbs. Leaves ovate, acute, shallowly toothed or lobed, more or less pubescent, thin, base cuneate. Flowers yellow, solitary. Berries subglobose, enveloped in the enlarged calyx. Common weed of wet and cultivated fields.

Local name: Phuga

Fl. & Fr.: August to February.

GPS coordinates: 20°50.404'N and 74°1.033'E

Exsiccata: SDK – 156, 310, 522

Uses: Fruits are eaten by tribal people and the plant is used as fodder for cattle.

Solanum americanum Mill., *Solanum nigrum* L., Lakshminarsimhan & Sharma, FI. Nasik 337, 1991; Almeida, FI. Maharashtra 3B: 373, 2001; Singh *et al.*, FI. Maharashtra State 2: 505, 2001; Patil, FI. Dhule and Nandurbar Districts 423, 2003.

Plant characters: Erect annuals. Leaves ovate, ovate oblong or ovate lanceolate, cuneate and decurrent at base, entire to sinuate dentate. Flowers

white, in extra axillary, 3 to 8 flowered cymes. Berries purplish black, red or yellow, globose, smooth, shining. Common weed of fields and in wastelands.

Local name: Ghugri

Fl. & Fr.: September to December.

GPS coordinates: 21°4.711'N and 74°3.183'E

Exsiccata: SDK – 160, 332, 544

Uses: Extract of the plant is given in jaundice. Stem is used as tooth brush to reduce pain in gums and toothache. Leaf extract is used for cough. Leaves are crushed and juice is applied on body for heat and small boils. Juice of leaves is dropped in ear to relieve earache. Leaves are used as vegetable and ripe fruits are eaten by the tribal.

Solanum anguivi Lam. Lakshminarsimhan & Sharma, Fl. Nasik 336, 1991; *Solanum violaceae* Ortega, Almeida, Fl. Maharashtra 3B: 380, 2001; Singh *et al.*, Fl. Maharashtra State 2: 503, 2001; Patil, Fl. Dhule and Nandurbar Districts 421, 2003.

Plant characters: Under shrubs or shrubs 1.5 m high. Leaves, broadly elliptic or elliptic oblong or ovate, prickly on nerves. Inflorescence of extra axillary, racemose cymes. Flowers blue. Berries globose, yellowish red when ripe. Seeds orange, spherical, minutely pitted.

Local name: Ringni

Fl. & Fr. : August to December

GPS coordinates: 20°15.207'N and 73°33.003'E

Exsiccata: SDK – 251, 348

Uses: The fruits are crushed by hands and the juice is dropped in ear to cure ear ache. The juice of fruit is consumed to overcome weakness and digestive problems. The paste of fruits is applied to cure piles.

Solanum erianthum D. Don, Almeida, Fl. Maharashtra 3B: 374, 2001; Singh *et al.*, Fl. Maharashtra State 2: 504, 2001.

Plant characters: Shrubs or small trees. Leaves ovate, elliptic, apex broadly acuminate. Flowers white, in leaf opposed dichotomous cymes. Berries globose, yellow, covered with stellate hairs.

Local name: Ran wange

Fl. & Fr.: July to January.

GPS coordinates: 20°47.468'N and 74°3.608'E

Exsiccata: SDK – 703, 704

Uses: To treat headache, the leaves are warmed, crushed and the paste is applied to the forehead. Dysentery, fever, and bodily pains are treated with root decoction. For toothache and tonsillitis, fruits are boiled in water and inhaled as a vapour. While working in the field, fruits are rubbed on the hands and legs as an insect repellent. To cure male sterility, the seeds are burned to ash and administered for seven days. Cough is treated using a root decoction.

Solanum viarum Dunal., *Solanum aculaetissimum* Almeida, Fl. Maharashtra 3B: 373, 2001. *Solanum myriacanthum* Dun. Singh *et al.*, Fl. Maharashtra State 2: 518, 2001.

“Ran vangī”

Plant characters: Under shrubs, prickly, base woody. Leaves broadly ovate, apex acute, hirsute beneath. Flowers white, in sessile, lateral 1 - 4-flowered cymes. Berries globose. Seeds compressed, brown, minutely muricate.

Fl. & Fr.: October to May.

GPS coordinates: 20°47.748°N and 74°2.974°E

Exsiccata: SDK – 789, 790

Uses: The fruits are crushed by hand and applied on joints to cure joint pain. The unripe fruits are used as vegetable by the tribal.

Solanum virginianum L., *Solanum surattense* Burm.f., Lakshminarsimhan & Sharma, Fl. Nasik 337, 1991; Almeida, Fl. Maharashtra 3B: 380, 2001; Singh *et al.*, Fl. Maharashtra State 2: 506, 2001; Patil, Fl. Dhule and Nandurbar Districts 424, 2003.

Plant characters: Prickly herbs; prickles yellow. Leaves ovate elliptic, armed with prickles, hairy on both surfaces. Flowers purple, in extra axillary cymes. Berries yellow or white with green veins. Common in wastelands, along road sides and on rubbish heaps near villages.

Local name: Bhui ringni

Fl. & Fr.: January to June.

GPS coordinates: 21°4.965°N and 74°3.451°E

Exsiccata: SDK – 162, 439, 651

Uses: Fruits are boiled in earthen pot and the vapors are inhaled for the treatment of mouth blisters. Seeds are warmed on iron vessel and the smoke is taken twice a day for treating toothache. Root is crushed and extract is given for cough and treating boils. Seeds are burnt and smoke is given for tooth ache.

Roots are given in Amulet (Tabij) after chanting mantra to small children to protect them from evils.

Solanum torvum Swartz. Almeida, Fl. Maharashtra 3B: 378, 2001; Singh *et al.*, Fl. Maharashtra State 2: 506, 2001.

Plant characters: Shrubs, densely covered with stellate hairs; stem and petioles prickly. Leaves ovate, shallowly lobed, shortly acuminate at apex, subcordate at base. Flowers white, many in dense cymes. Berries globose, shining yellow when ripe. Seeds brown.

Local name: Barik vange

Fl. & Fr. : September to January

GPS coordinates: 20°49.962°N and 74°4.279°E

Exsiccata: SDK – 289, 512

Uses: Fruits and Seeds burnt and smoke is taken to cure toothache and to reduce cough.

Withania somnifera (L.) Dunal., Lakshminarsimhan & Sharma, Fl. Nasik 338, 1991; Almeida, Fl. Maharashtra 3B: 382, 2001; Singh *et al.*, Fl. Maharashtra State 2: 508, 2001; Patil, Fl. Dhule and Nandurbar Districts 424, 2003.

Plant characters: Undershrubs, much branched. Leaves ovate, more or less minutely stellately pubescent, apex subacute, Flowers yellow. Berries globose, smooth, red when ripe. Common in wastelands and along road sides.

Local name: Ashvagandha

Fl. & Fr.: March to July.

GPS coordinates: 20°47.820°N and 74°2.577°E

Exsiccata: SDK – 86, 407, 577

Uses: Decoction of leaves and root is massaged on forehead to cure headache. Dried root powder is given for insomnia. Leaf is crushed in water and extract is given to cure fever. Fresh root extract is used for treating impotency.

Cultivated species used:

Capsicum annum L.

Local name: Mirchi

Uses: Leaves are crushed and juice is dropped in nostril to cure headache. Cultivated for fruits and sold in market.

Cestrum nocturnum L.

Local name: Raatrani

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Uses: Planted in villages for fragrant flowers.

***Lycopersicon esculentum* Mill.**

Local name: Tomato

Uses: Cultivated for fruits and sold in market.

***Solanum melongena* L.**

Local name: Vangi

Uses: Cultivated for fruits and sold in market.

RESULT AND DISCUSSION:

The ancient plant lore has passed through generations orally in tribal societies. The anthropogenic pressure, in general, is steadily increasing in our country on account of demand for agricultural land, industrialization and also due to agricultural practices and the population pressure. The forests are being exterminated and tribal culture is concomitantly changing. These forces will obviously lead us to losing forever the wealth of empirical knowledge that these ethnic people have and we need strategies for the conservation of both these plants as well as ethnic groups for posterity. It is to be noted that the Kokni tribal people still depend on the indigenous system of medicine. The traditional folklore is being transmitted orally from one generation to another. Their knowledge about medicinal utilities of plants have not received due attention in past. They have remained practically unknown or lesser known to the modern society. The utility of folk medicines or traditional medicines is widely spread in the tribal society. On account of lack of health centers, doctors and the expenses for their treatments, there is a high percentage of tribal population depending on it. The different plant species are used to treat different human ailments even in the modern period. It appears necessary to screen the traditional uses of plants on modern scientific grounds. Though a large mass of data exists on herbal drugs, the claims are not always authentic. Ethnomedicinal plants can, no doubt help to discover new drugs or lead molecules for the development of new drugs, provided the data should be scientifically evaluated.

CONCLUSION:

Traditional knowledge based on plants is now widely used to find novel medication sources, and it is evident that the Solanaceae family can provide a foundation for future medical study. The study of these medicinal plants and

their traditional uses throughout the world has drawn more attention in the last few decades. As a result, more research should be done to fully comprehend its characteristics, safety, and effectiveness. To find the active principles, their benefits, and their uses, phytochemical studies and other potentialities should be expanded upon. This will eventually reveal novel medications and other unidentified compounds. The demand for a viable alternative supply of therapeutic plants will be satisfied by this contribution. According to the study, the ethnobotanical plant diversity in the districts of Nasik and Dhule is huge, and researchers, foresters, chemists, and other multidisciplinary projects can benefit from the plant's raw database.

ACKNOWLEDGMENT:

The author is thankful to the Principal and Management, Siddharth College of Arts, Science and Commerce, Fort, Mumbai for providing necessary facilities. Author is thankful to Shri Vijay Bahiram, Shri Punaji Gangurde, Shri Raman Pavar and Shri Atmaram Gavli, the Kokni informant, for providing information about the plants. The author is thankful to Mr. Pravin Kale from Blatter Herbarium, St. Xavier's College (Autonomous), Mumbai for authentication of plants.

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