

ETHNOMEDICINAL PLANT RESOURCES OF SIMILIPAL BIOSPHERE RESERVE, ORISSA, INDIA

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On a global scale, the current dependence on traditional medicine system remains high, with a majority of world's population still dependent on medicinal plants to fulfill most of their healthcare needs. It is estimated that about 64% of the total global population depend on traditional medicines (Farnsworth, 1994; Sindiga, 1994). Nearly 8000 species of plants have been recognized as of ethnobotanical importance (Anon., 1994). Medical ethnobotany deals with the nature and application of plants used within traditional medical systems and it involves the identification of plants used in traditional remedies, and sometimes includes investigations into folk systems of classifying medicinal plants. This paper deals with the study of ethnomedicinal plant resources of the Similipal Biosphere Reserve.

The Similipal Biosphere Reserve lies between 20°17'-22°10'N and 85°57'-86°47'E and is situated in the central part of district Mayurbhanj of Orissa, with an area of 5569km². The forest area is quite rich in plant wealth with 1076 species of flowering plants (Saxena & Brahmam, 1989). Similipal is inhabited by a number of aboriginal tribes. The chief ones among them are Santals, Gonds, Kols, Bhomija, Bhuyan, Bathudi, Kharia, Mankadia, Sounti and Saharas. The tribals utilize a number of medicinal plants available in the forest, which are effective in the treatment of many diseases. The rich forest flora and vast tribal population in the reserve have attracted a number of workers for ethnobotanical studies in the past (Saxena, *et al.*, 1988; Pandey *et al.*, 2000, 2002; Pandey & Rout, 2003; Rout, 2005).

The study was carried out in 35 villages of buffer and core areas of the Similipal Biosphere Reserve during 2003-2004. The local tribal *baidyas* (doctors) and tribal old man were interviewed to record different plants used for various remedies. Regarding the common diseases the respondents informed about the frequent occurrence of malaria with other diseases like dysentery, snakebite, jaundice, cold fever, scabies, earache, tuberculosis, headache and colic. The collected plant species were identified with the help of floras (Haines, 1921-25; Saxena & Brahmam, 1994-96). To ascertain the uses of these medicinal plants, the earlier published scientific literature sources referred to were Jain (1991), Kirtikar and Basu (1991), Ambasta *et al.* (1992), Chopra *et al.* (1996), besides many other books and articles published in different journals. The medicinal plants collected are listed here with their botanical names followed by family name and their local names in Oriya.

Ethnomedicinal observations:

Malaria

Nyctanthes arbortristis L. (Oleaceae), 'Gangasiul'
250g leaves boiled with ½ liter of water till it becomes 100ml and mixed with leaf juice of *Ocimum tenuiflorum*. This decoction is mixed with 50ml of honey and prescribed for three days.

Rauvolfia serpentina (L.) Benth. ex Kurz (Apocynaceae), 'Patalgarud'

Juice extracted from leaves mixed with the juice of *Andrographis paniculata* and *Azadirachta indica* and drunk with honey for seven days continuously to cure malaria.

Snakebite

Rauvolfia serpentina

Juice extracted from leaves taken twice a day for three days. 15g roots along with root of *Cassia tora* and bark of *Holarrhena pubescens* paste applied twice a day for two days.

Calotropis gigantea (L.) Ait. (Asclepiadaceae), 'Arka'
Latex is applied on the bitten area thrice a day for two to three days.

Cassia fistula L. (Caesalpiaceae), 'Sonari'

Bark is prepared into paste and applied on the bitten area two to three times a day for two or three days.

Decoction of mixture containing roots along with equal quantity of roots of *Stereospermum chelonoides*, latex of *Calotropis gigantea* and stem juice of *Musa paradisiaca* mixed with pepper given twice a day for two to three days for relief from snakebite.

Jaundice

Lawsonia inermis L. (Lythraceae), 'Manjuati'

Roots mixed with flowers of *Curcuma aromatica* made into paste and given orally once a day for seven days.

15g leaf juice of *Lawsonia inermis* with 5g of pepper given internally once a day for 20 days.

Roots of the plant, leaf juice of *Abutilon persicum* along with three seeds of pepper and rice given orally to the patient twice a day for one week.

Coccinia grandis (L.) Voigt. (Cucurbitaceae), 'Bankunduri'

Fresh leaf juice along with leaves of *Kalanchoe pinnata* and sugar ground with water and taken twice a day for four to five days to cure jaundice.

Oroxylum indicum (L.) Kurz (Bignoniaceae), 'Phen phena'

50ml leaf juice prescribed to be taken orally thrice a day for three to four days to cure jaundice.

Dysentery

Kalanchoe pinnata (Lam.) Pers. (Crassulaceae), 'Amarpoi'

25ml of fresh leaf juice given orally three times a day for three days to cure dysentery. Leaves with bark juice of *Shorea robusta* given internally.

Hibiscus rosasinensis L. (Malvaceae), 'Mandar'

Twigs and sugar made into a paste as a remedy for dysentery.

Indigofera cassioides Rottl. ex DC. (Fabaceae), 'Gileri'

Flowers and roots mixed and ground into paste with water and given to cure dysentery. Roots with bark juice of *Careya arborea* given as a remedy for blood dysentery.

Clausena excavata Burm. f. (Rutaceae), 'Agnijal'

Roots with equal quantity of leaves of *Careya arborea* and *Terminalia alata* mixed into water and given orally twice a day for two to three days.

Roots mixed with the barks of *Holarrhena pubescens*, *Anogeisus latifolia* and *Pterocarpus marsupium* and prepared as pills. One pill taken orally on empty stomach for three days.

Curcuma angustifolia Roxb. (Zingiberaceae), 'Palua'

Roots and sugar mixed with large quantities of water and given twice a day for three to four days to cure dysentery.

Spondias pinnata (L. f.) Kurz (Anacardiaceae), 'Ambada'

Bark juice with fruit of *Musa paradisiaca* given in dysentery. Equal quantities of bark juice of *Spondias pinnata* and *Syzygium cumuni* generally prescribed for dysentery.

Pterocarpus marsupium Roxb. (Fabaceae), '*Piasal*'

Powdered bark mixed with *Schleichera oleosa* and taken with cold water for treatment of dysentery.

Achyranthes aspera L. (Amaranthaceae), '*Apamaranga*'

25g of root juice with 50g of sugar in water taken twice a day until relief from dysentery.

Cold fever***Phyllanthus fraternus*** Webster (Euphorbiaceae), '*Bhuiamla*'

Decoction of 5g of fresh and clean roots mixed with a glass of unboiled cow's milk taken twice a day for three days.

Schleichera oleosa (Lour.) Oken. (Sapindaceae), '*Kusuma*'

One teaspoon oil of *Schleichera oleosa* mixed with garlic heated and massaged on body for five minutes to cure cold fever.

Ocimum tenuiflorum L. (Lamiaceae), '*Tulsi*'

5g of leaves with two pepper seeds mixed with hot water and given in the morning and evening for three to five days. Fresh leaves of *Ocimum tenuiflorum* along with ginger and honey made into pills. This pill taken orally twice a day for one or two days.

Ear ache***Coccinia grandis*** (L.) Voigt (Cucurbitaceae), '*Bonkunduri*'

Leaves crushed and the juice applied directly on the ear.

Schleichera oleosa

Approximately 15-20ml oil heated with two to four pieces of garlic and after five minutes one or two drops dropped into the ear.

Shorea robusta Gaertn. Fruct. (Dipterocarpaceae), '*Sa'*

Filtered stem juice directly used for relief from earache.

Vanda tessellata (Roxb.) G. Don (Orchidaceae), '*Malanga*'

Two to three drops of warmed leaf juice put in the ear once a day for two to three days.

Scabies***Vitex negundo*** L. (Verbenaceae), '*Begunia*'

Seven teaspoons of juice extracted from leaves and barks of *Strychnos nuxvomica* applied like ointment on the affected part.

Aloe vera L. (Liliaceae), '*Gheekuanri*'

The fresh leaf juice applied on the affected area once a day during morning hours until the white patches disappear.

Phyllanthus fraternus

Juice extracted from leaves and consumed in the morning and evening for 5-10 days.

Andrographis paniculata (Burm. f.) Wallich ex Nees (Acanthaceae), '*Bhuin neem*'

Juice extracted from leaf mixed with root juice of *Rauvolfia serpentina* and *Nyctanthes arbortristis* and given to patients suffering from scabies.

Tuberculosis***Solanum surattense*** Burm.f. (Solanaceae), '*Bhagebaigana*'

Paste of fruits mixed with pepper and ghee of cow given for seven days as a remedy for tuberculosis

Celastrus paniculatus Willd. (Celastraceae), '*Pengu*'

Three to four drops of seed oil taken with one teaspoonful of water once a day on empty stomach for one month.

Head ache***Elephantopus scaber*** L. (Asteraceae), '*Mayurchulia*'

The entire plant is cooked with rice and eaten to cure migraine. An entire root tied over forehead to get relief from headache.

Holarrhena pubescens (Buch.-Ham.) Wallich ex G. Don (Apocynaceae), '*Kuluchi*'

Decoction of roots with garlic and mustard made into paste and applied externally as an ointment to cure headache.

Colic pain***Rauvolfia serpentina***

Extracted juice of roots given two to three times once a day for two to three days to cure colic pain.

Seeds are powdered, mixed with equal quantity powder of seeds of *Terminalia bellerica* and *Terminalia chebula* and added to a large quantity of water. A spoonful of it taken twice or thrice a day.

The study reveals that the inhabitants of Similipal area have vast knowledge about ethnomedicinal uses of plants growing in their vicinity. The tribal inhabitants like Kharia, Mankadia, Bhumija, Santals, Gonds, Kols and Mahalis dominate in Similipal. These tribes live in deep forests with their own community and use a large number of plants for their medicine. Literature studies revealed that little work has been done on different ethno-botanical aspects in Similipal. Therefore, there is an urgent need for documentation of their knowledge on priority basis. The tribals are not interested to share their knowledge with others. However, after developing intimacy with some of the medicine men and other traditional healers, some information on medicinal uses has been collected and is presented in this paper. Twenty-seven species were to be used in different ways to cure this ailments. These include plants whose medicinal importance has not been recorded and reported so far, or about which new information on medicinal uses and mode of administration has been obtained. The observation revealed that the tribes used stem and bark as the most common crude drug in their preparations to cure different diseases. Although the information given by tribals of Similipal are not comparable to the modern medicine, their efficacy is claimed to be high.

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ACKNOWLEDGEMENTS

The authors are thankful to the Conservator of Forests and Field Director, Similipal Biosphere Reserve for granting permission to carry out the study. Thanks are also due to the tribal people who have given the valuable information and cooperation during field work.



NOTE

ZOOS' PRINT JOURNAL 21(8): 2374-2376

STATUS, POPULATION ESTIMATES AND EFFECT OF URBANIZATION ON POST-BREEDING SHRIKES *LANIUS* SPP. IN MAHARASHTRA, INDIA

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True shrikes, *Lanius* species (Laniidae) are birds of open habitat and are important indicators of environment degradation and status of grassland communities (Hands *et al.*, 1989; Fusz & Yosef, 1998). The status, habitat preference and population trends of several shrike species have been studied in various parts of the world: Great Grey Shrike (*L. excubitor*) and Red-backed Shrike (*L. collurio*) in Sweden (Olsson, 1995), Loggerhead Shrike (*L. ludovicianus*) in peninsular Florida (Yosef, *et al.*, 1993), in the continental United States and Canada (Morrison, 1981; Burnside & Shephard, 1985; and Cadman, 1985; Hands *et al.*, 1989), Brown shrike (*L. cristatus*) in Hokkaido, Japan (Haas & Ogawa, 1995) and Rufous-backed shrike (*Lanius schach*), Bay-backed Shrike (*Lanius vittatus*), Red-backed Shrike (*L. collurio*) and Southern Grey Shrike (*Lanius meridionalis*) in India (Pande *et al.*, 2004). Of the twelve species of shrikes found in India six species are reported from Maharashtra in western India. (Ali & Ripley, 1989). Here we present the results of our observations on status, habitat choice and population estimates on three species of shrikes in Maharashtra, India, recorded during the recent survey and comparison with the results from our earlier shrike survey.

Methods

We conducted a roadside survey of shrikes by non-intersecting line transect method from Pune 18°29'N & 73°50'E to Ahmadnagar 19°06'N & 74°46'E on 01 December 2005 from 0800hr until noon. We rode on a motorbike at a speed of 25 to 30km/hr. Along with

shrikes we also recorded other insectivorous birds and raptors within a distance of 200m on either side of the road by using a 10 x 50 binoculars. We surveyed 122km and recorded the predominant habitat at the end of each kilometer. All the 122 locations recorded were classified into seven major habitat categories: urban (n = 52), agricultural (n = 19), urban fringe (n = 16), scrub and agricultural (n = 14), scrub (n = 10), ghat or winding hilly road (n = 7) and river in urban area (n = 4). Presence or absence of shrike species and their perch sites were also simultaneously recorded for each km. Data on exact location is on our file.

Results

A total of 47 shrikes were recorded along the 122-km census route, 0.38 shrikes / km or 1 shrike / 2.6km regardless of species. The shrikes observed were: Rufous-backed Shrike (n = 41, 87.2%), Bay-backed Shrike (n = 5, 10.6%) and Southern Grey Shrike (n = 1, 2.2%). All the three species are residents with local or seasonal movements and the present survey was conducted during the post-breeding period.

Urban habitat was predominant (42.6%) followed by agricultural (15.6%), urban fringes (13.1%), scrub with agricultural (11.5%), scrub (8.2%), ghats (5.7%) and river in urban area (3.3%) (Fig. 1). Occurrence of shrikes in various habitats was: 110% in scrub, 92.9% in scrub and agricultural, 89.5% in agricultural and 37.6% in urban fringes. We observed that the shrikes were absent in urban areas, ghats and around river in urban areas (Fig. 1). Amongst agricultural zones shrikes were seen in crops of millet, beans, gram, leafy vegetables, on ploughed fallow fields but were not seen in sugarcane fields.

Rufous-backed Shrikes occurred in four of seven habitats, Bay-backed Shrike in three of seven habitats and Southern Grey shrike in one habitat. Population density per kilometer of Rufous-backed Shrikes was highest in scrub (1.1) followed by agricultural (0.79), scrub and agricultural (0.77) and urban fringes (0.31). Population density of Bay-backed Shrikes per kilometer was: scrub with agricultural (0.15), agricultural (0.1) and urban fringes (0.06). Population density of Southern Grey Shrikes per kilometer: scrub with agricultural area (0.07). Scrub with agriculture was occupied by all the three species of shrikes.

All species of shrikes perched on electric wires (n = 44), Rufous-backed Shrikes also perched on trees (n = 2) and Bay-backed Shrike on bush (n = 1).

Discussion

Four habitats in open country were occupied by three species of shrikes in the post-breeding season with an overall density of 0.38 shrikes/km, which is less than half of that of Red-backed Shrikes *Lanius collurio* (1/km) in Hungary in post-breeding season, (Fusz & Yosef, 1998) and slightly less than that observed earlier by us (0.42 shrike/km) for Rufous-backed, Bay-backed, Southern Grey and Red-backed shrikes (Pande *et al.*,