



# Occurrence of *Oroxylum indicum* (L.) Kurz in Sindhudurg district of Konkan region, Maharashtra state of India.

## Author

Gayatri Tingre<sup>1</sup>, Dr. Ravindra Kshirsagar<sup>2</sup>, Dr. Jiwan Sarwade<sup>3</sup>

## Affiliation

1 and 2- Department of zoology in Modern College of Arts, Science and Commerce, Ganeshkhind, Pune- 411016,  
Maharashtra, India.

3- Department of zoology in Indapur Taluka Shikshan Prasarak Mandal's , Arts Science and Commerce College, Indapur,  
Pune - 413106, Maharashtra, India.

## Abstract

The purpose of this investigation was to study the occurrence of *Oroxylum indicum* in the Sindhudurg region of Konkan, Maharashtra. Although this medically significant plant species has been reported from other parts of the Sindhudurg district, it has not been documented in Sherle and Sangeli villages, which were therefore selected for this study. The results of this study indicate that the availability of *Oroxylum indicum* in the study area is limited. The study also concludes that human development has caused significant damage to this plant species, putting it at risk of extinction. To address this issue, urgent actions are needed to conserve and protect the existing plant species of *Oroxylum indicum* and to encourage the plantation of more trees in the study area.

## Keywords

Medicinal plant , Occurrence, Sindhudurg, *Oroxylum indicum*, Konkan, Maharashtra.

## 1. Introduction

The usage of floras and faunas as a source of medication and nutrition is as ancient as humankind (Sure & Gaikwad, 2019). India has a peculiar position at the global level, where a variety of identified native systems of medication, viz., Ayurveda, Siddha, Unani, Homeopathy, etc., are being used for well being of people (Kale et al., 2018). In India, medicinally important herbs are extensively used by the entire sector of the people, with an assessed 7500 species of herbs used by numerous tribal populations (Saudagar et al., 2015). The ethnic population of Maharashtra generally depends on indigenous medications directly based on herbal resources (Mishra & Agarwal, 2004). Even now, ethnic populations from India gather and save locally existing native and planted herb species and prepare phytomedicines for the treatment of a variety of diseases and disorders (Mahishi et al., 2005). The Sahyadri ranges and the Konkan region of Maharashtra are considered actual marketplaces of therapeutic herbs (Sure & Gaikwad, 2019).

Sindhudurg district is situated in the Konkan area of Maharashtra. It is positioned between latitude 15° 37' N to 16° 40' N and longitudes 73° 13' E to 74° 13' E (Somkuwar, Chaudhary, et al., 2012). The region of Sindhudurg district is 5087.5 sq.km (Somkuwar, Chaudhary, et al., 2012). A total of eight talukas are found in the district such as Dodamarg, Devgad, Savantwadi, Kudal, Malvan, Kankavli Vaibhawadi and Vengurla (Somkuwar, Chaudhary, et al., 2012). The district has a normal maximal temperature of 33.7 °C and an average minimum temperature of 16.7 °C (Somkuwar, Chaudhary, et al., 2012). The average rain is 3042.2 mm (Somkuwar, Chaudhary, et al., 2012). Laterite soil is specifically present in the Sindhudurg region (Somkuwar, Chaudhary, et al., 2012). It differs from dark red to brownish red in colour; it comes from hydrated iron oxides (Somkuwar, Chaudhary, et al., 2012). Nitrogen and organic matter are found in excessive quantities in laterite soil (Somkuwar, Chaudhary, et al., 2012). The soil texture is loamy (Somkuwar, Chaudhary, et al., 2012).

Sindhudurg district in the Konkan region is famous for its evergreen forestry, mountain ranges, towns, natural water sources and uncontaminated seaside (Somkuwar et al., 2013). Visitors are becoming more interested in this location these days (Somkuwar et al., 2013). This area has the most appealing environment and biological diversity in Maharashtra (Somkuwar et al., 2013). It is also a favourite area for naturalists and scientists as huge amounts of medicinal herbs, uncommon floras and faunas are observed in this district (Somkuwar et al., 2013). The complex physical features and excessive rainfall in this area aided in maintaining its biological variety (Somkuwar et al., 2013).

Sindhudurg is one of the huge biodiversity regions in Maharashtra (Somkuwar, Chaudhary, et al., 2012). There are a large number of medicinal plants found in the Sindhudurg district (Somkuwar, Chaudhary, et al., 2012). *Oroxylum indicum* is a significant endangered indigenous therapeutic herb found in different regions of India (Rajasekharan et al., 2017). It has been a significant element in Ayurvedic and traditional medicines for thousands of years (Joshi et al., 1977). Medically important plants such as *Oroxylum indicum* present in Gulduve, Talwane, Kesari, Phansavde, Tirwade, Kalne, Redi, Nonos, Amboli and Charatha reported from Sindhudurg district (Somkuwar, Reddy, et al., 2012). But the plant *Oroxylum indicum* is not reported from Sherle and Sangeli villages in the Sindhudurg district. Therefore, we have selected Sherle and Sangeli villages from the Sindhudurg district for the present work.

Therapeutic herbs give raw resources for usage in all the original systems of medication (Somkuwar, Chaudhary, et al., 2012). The demand for therapeutic herbs is increasing by the day, but the changing global environment is threatening this herbal wealth (Somkuwar, Chaudhary, et al., 2012). This reflects the necessity to study and reserve a variety of therapeutic

floras (Somkuwar, Chaudhary, et al., 2012). Therefore, this investigation is being carried out to explore the occurrence of *Oroxylum indicum* from the Sindhudurg region.

The present study will provide information about the current status of *Oroxylum indicum* in the study area. This knowledge will help to develop conservation and protection strategies for the community of *Oroxylum indicum* from the study area.

## 2. Material and Methods

### 2.1. Study area

The present study focuses on Sherle and Sangeli villages in Sawantwadi tehsil from the Sindhudurg district of Maharashtra. It belongs to the Konkan region. Sherle lies between 15.8190 N latitude and 73.8478 E longitude. Sangeli lies between 16.02546° latitude and 74.2977° longitude. Laterite soil is commonly found in study areas. The climate of the study area is hot and humid in the summer and mild in winter. The average highest temperature is 33.2 °C, and the lowest temperature is 15.3°C. The rainfall in the study area is quite heavy during the months of June to September due to Southwest monsoon winds. During the period of the present work, the climate of the study area was dry and hot.

### 2.2. Data collection and analysis

During the present work, we have regularly observed plants from Sherle and Sangeli villages during the month of March 2022. A survey of different areas was done and studied the occurrence and habitat of the plant *Oroxylum indicum*. The information about the plant is collected through observation and communication with local and knowledgeable people. The plant specimen was collected from the field, pressed, dried and mounted on the herbarium sheets. The collected plant specimen in the form of a herbarium sheet was submitted to the Botanical Survey of India, Western Regional Centre, Pune and the plant sample was identified and authenticated by Dr. D. L. Shirodkar (Botanist from Botanical Survey of India, WRC, Pune).

## 3. Result and Discussion

The present investigation was conducted to record the occurrence of *Oroxylum indicum* in the study area. The results revealed the presence of only two individual plants of *Oroxylum indicum* in their natural habitat, one from Sherle village and one from Sangeli village. Our study highlights the limited availability of *Oroxylum indicum* in the study region.

The plant *Oroxylum indicum* is a medicinally important species that is on the verge of extermination from the study areas due to overgrazing, urbanization facilities, cutting down trees, unsustainable use of natural resources and other developmental activities. Due to a lack of awareness about the importance of the plant *Oroxylum indicum* in the study areas, people of this region are not involved in the conservation and protection activities of this plant.

### 3.1. Morphological characteristics of *Oroxylum indicum* from the study area

*Oroxylum indicum* is a species of flowering plant that belongs to the family Bignoniaceae. *Oroxylum indicum* is a medium-sized tree attaining heights of 8-12 m long. The colour of the stem bark is light brown. Leaves are broad, 0.5 to 1.5 m in length and pinnately compound. Leaflets are ovate, wavy and acuminate. Seeds are soft and flat and 3 cm in length and 5 cm in width. Seeds are round in shape with papery wings. This plant forms numerous seed pods that hang down from bear

branches, looking like swords in the night. Pods are 1 to 1.5 feet long. Pods turn into a dark brown to black colour when ripe. The plant parts have been photographed and shown in Figure 1.

### 3.2. Medicinal uses of observed plant from the study area

*Oroxylum indicum* is used as an antiseptic, and astringent. It is used to treat non-healing ulcers, dysentery, and rheumatism. The root bark and stem bark of *Oroxylum indicum* are anti-allergic and are used to cure allergic diseases, urticarial, jaundice, asthma, sore throat, laryngitis, diarrhea, erythema, and measles.

## 4. Conclusion

The present investigation revealed a very low number of *Oroxylum indicum* plants, with only two individual plants recorded in the study area. Our findings indicate that human activities such as excessive utilization of natural resources, deforestation, urbanization, overexploitation of biodiversity, and habitat loss have had a detrimental effect on this plant species. These actions ultimately lead to resource depletion and put several threatened and endangered *Oroxylum indicum* plants at risk of extinction. Consequently, there is an urgent need to raise awareness among local communities about the conservation and protection of this medically important species. The government should take immediate steps to develop conservation, protection, and tree-planting programs for *Oroxylum indicum* in the study areas. The local community should also be encouraged to participate actively in conservation efforts to ensure the long-term survival of this valuable plant species for future generations.

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## Figures

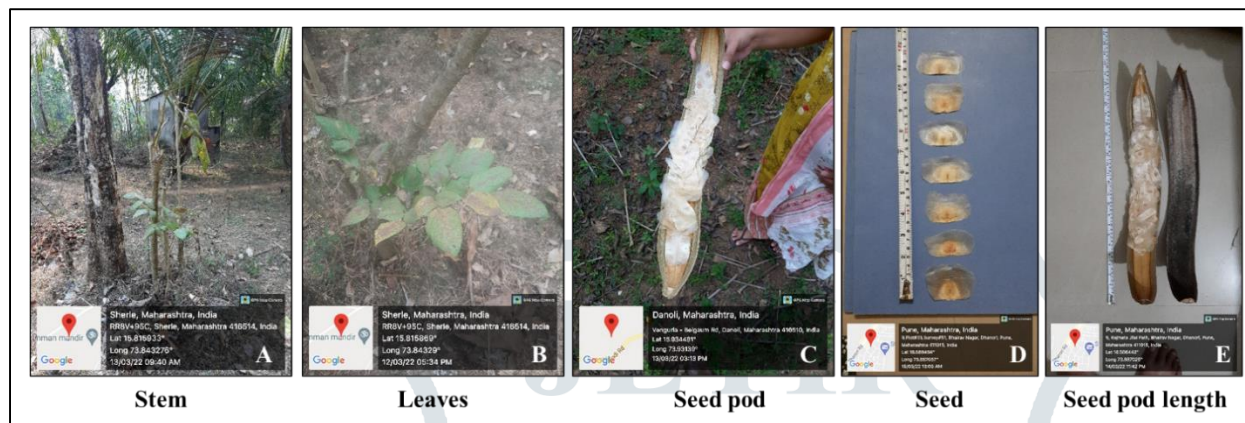


Figure 1 Observed parts of the *Oroxylum indicum* from Sherle and Sangeli villages