



Ethnomedicinal uses of *Tephrosia purpurea* (L.) Pers. by the tribals of Bargarh district, Odisha

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Abstract

An extensive ethnobotanical survey was conducted in different forest localities of Bargarh district with the help of some local herbal medicine practitioners. During the survey, *Tephrosia purpurea* (L.) Pers. was also collected and identified along with other plant species from different places in the district. *Tephrosia purpurea* is a wild herb that belongs to the family Leguminosae. It is locally known as Jharkulthia; in Ayurveda, it is known as 'Sarwa wran vishapah' which means the ability to cure all types of wounds. Its plant parts such as roots, stems, leaves, and seeds are used in traditional medicine. The local inhabitants of this region use its different parts to cure various diseases and ailments such as chronic diarrhoea, gonorrhoea, melena, piles, spleen enlargement, oedema, asthma, plague, dental carries, pimples, itch, ringworm, and scabies.

Keywords: Ethnomedicinal plant, *Tephrosia purpurea*, tribals, Bargarh district

Introduction

Tephrosia purpurea (L.) Pers., a wild herb from the Leguminosae family, is locally known as Jharkulthia; Kolathia, Sharaphunka in Odia, Saraphunka in Sanskrit, and Wild indigo in English. It is a significant medicinal plant not only in Ayurveda but also in herbal medicine practices. Traditionally *Tephrosia purpurea* is used as a folk remedy is a key ingredient in preparations of liver tonics such as Tephroli and Yakrifit. It exhibits a range of biological activities, including anti-ulcer, anti-viral, antimicrobial, antibacterial, anti-asthmatic, hepatoprotective, antihyperglycemic, and wound healing properties (Dalwadi *et al.*, 2014) ^[1]. In Ayurveda, it is known as "Sarwa wran vishapah," which translates to 'the healer of all wounds' (Deshpande *et al.*, 2003). It is highly effective in treating inflammation, liver problems and spleen enlargement, earning it the names 'plihari' or 'plihasathru,' with 'plihari' referring to the spleen (Shivrajan and Balachandran 1994) ^[3].

Botanical classification

Kingdom: Plantae

Subkingdom: Tracheobionta

Super division: Spermatophyta

Division: Magnoliophyta

Class: Magnoliopsida

Sub class: Rosidae

Order: Fabales

Family: Leguminosae

Genus: *Tephrosia*

Species: *purpurea*

Brief description of the plant

It is an erect or spreading perennial herb. Leaves imparipinnate; 7 to 15 leaflets, oblanceolate to obovate, cuneate, hairy, stipules narrowly triangular; rachis ca. 14.5 cm long. Inflorescence in a leaf-opposed pseudo raceme, with 3 or more nodes, each node bearing 1-3 flowers with a setaceous bract. Flowers in fascicles of 4 – 6, purple, 4 - 9 mm long. Calyx campanulate, persistent, unequally 4-toothed, lanceolate to ovate, appressed hairy. Corolla 5

petals with standard, wings and keels. Stamens 10, filaments alternately longer and shorter; style upper half-smooth, stigma penicillate at the base. Pod flat, linear, slightly curved towards the end, seeds 2-10, ovoid, light to dark brown to black.

Flowering and fruiting in most of the year.

Distribution

There are 300 to 400 species (Hegazy *et al.*, 2011; Chen, *et al.*, 2014; Sahu *et al.*, 2018) ^[4, 5, 6] of *Tephrosia* are found in tropical and subtropical regions worldwide (Sahu *et al.*, 2018) ^[6]. According to POWO (2022) ^[7], 358 species of *Tephrosia* are available worldwide. In India, it is represented by 28 species (Sanjappa, 2020) ^[8]; in Odisha, it is represented by 7 species (Haines, 1921-25) ^[9]; and 9 species (Saxena and Brahman (1994) ^[10].

Tephrosia purpurea has a wide range of distribution in India, Australia, China, and Sri Lanka, from altitudes of 400 m to 1300 m. It typically grows in waste areas along roadsides, favoring dry, gravelly, rocky, or sandy soils (Neelesh Babu, 2017) ^[11]. In India, it is particularly abundant in the Western Himalayas and the upper Gangetic plain (Aneshwari, 2022) ^[12] and it was earlier reported to be distributed in Gujarat, Maharashtra, Odisha, Rajasthan and Madhya Pradesh (Thirumurugan *et al.*, 2022) ^[13].

Study area

The study area is confined to Bargarh district, situated in the Western part of Odisha. It is one of the 30 districts in the state. It lies between longitude 82° 39' and 83° 58' East and between latitude 20° 43' and 21° 41' North and it covers a geographical area of 5837 sq. Km. The district undertaken for the study is bounded by West Bengal to the northeast and in the east, Jharkhand to the north, Chhattisgarh to the west and northwest and Andhra Pradesh to the south. The tribal people inhabiting the district are Binjhal, Sahanra (Saora), Kondh, Gond, Munda, Kuli, Kalanga, Oran, Mirdha, Dharua, Kisan, Kharia, and Parja. The district has several undulating hills and valleys rich with forest vegetation. The forest is mostly dry deciduous type. The tribals and other rural inhabitants residing in and outside the

forest know about the use of various plants to treat different ailments and diseases. The climate is mostly dry and temperatures increase to 46° C during the last week of May or the first week of June.

Materials and Methods

The plant specimens were collected from the proposed study area during the field survey. These were identified and authenticated with the help of a regional flora book (Haines, 1921-25; Saxena and Brahmam, 1994-96) [9, 10]. The field survey was conducted with the help of some experienced people having knowledge about medicinal plants and traditional healers of the locality. Some selected local experienced old persons and herbal medicine practitioners such as Kabirajs, Vaidyas, and village priests (*Jhankar* and *Desari*) were interviewed regarding the ethnomedicinal uses of plants. *Tephrosia purpurea* is one among those plant specimens having some specific medicinal uses as reported by local herbal medicine practitioners. The ethnomedicinal uses of the plant shared by the tribals and other rural people have been cross-checked with some related scientific publications (Jain, 1991; Kirtikar and Basu, 1991; Ambasta *et al.*, 1992; Chopra *et al.*, 1996; Pal and Jain, 1998; Pal and Jain, 1998; Singh *et al.*, 2002; Warriar *et al.*, 2004; Paria, 2008; Bhardwaj and Shrivastava, 2016) [14, 15, 16, 17, 18, 19, 22].

Ethnomedicinal observations

The present investigation on the ethnomedicinal study of Jharkulthia revealed that the plant has been used by the tribal and non-tribal people of the study area to cure various diseases and ailments. The following are the ethnomedicinal uses as reported by the local inhabitants of the study area.

1. Root decoction (4 teaspoons) is taken 2-3 times daily to cure chronic diarrhoea.
2. An equal amount of root of the plant and Fruit powder of *Piper nigrum* are crushed together and the paste (1 gm) is taken 3 times daily to cure gonorrhoea.
3. Roots of the plant and leaves of *Tagetes erecta* are crushed together in a proportion of 1:4 and the paste (1 gm) is taken three times daily to cure melena (stool with blood).
4. Roots of the plant and leaves of *Tagetes erecta* are crushed together in a proportion of 1:4 and the paste (1 gm) is taken three times daily to get relief from piles.
5. The root bark of the plant is crushed with curd and 1 gm of this is taken 3 times daily to get relief from enlargement of the spleen.
6. Root powder of the plant along with honey is applied to cure pimples.
7. Leaf extract (3 teaspoons) is taken twice daily on empty stomach to cure oedema.
8. Leaves smoke is inhaled through the mouth to get relief from asthma.
9. Stem is used as a toothbrush to cure dental carries.
10. Root powder is rubbed off the teeth to cure dental carries.
11. Seed powder (1 gm) is taken in warm water 3 times daily to cure the plague.
12. Seeds paste along with turmeric is applied to cure itch.
13. Seed oil is used to cure scabies, itch and ringworm.

Results and Discussion

The paper deals with the single plant species *Tephrosia purpurea* which provides information on the use of various plant parts such as roots, stems, leaves, and seeds for the treatment of different diseases by the people of Bargarh district in Western Odisha. The plant parts are utilized to cure diseases like chronic diarrhoea, gonorrhoea, melena, piles, spleen enlargement, oedema, asthma, plague, dental carries, pimples, itch, ringworm, and scabies. Although hundreds of research papers have been documented on different aspects of this plant, still it needs much more analysis to be done about this plant for the benefit of the people.

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Conclusion

This plant shows various therapeutic activities and imparts medical values of great potential. From the study, it has been concluded that it is a plant of multifarious uses for people. Hence it is necessary to ensure the survival of the plant population by providing protection and *in-situ* and *ex-situ* conservation. Besides, care has to be taken to conserve hidden knowledge about medicinal use which is still alive among the veteran people

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