

Diversity of poisonous plants in Sendri village of Jaijaipur block, Sakti district, Chhattisgarh, India

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Abstract

Chhattisgarh, with a forest cover of approximately 44%, has rich biodiversity and diverse plant species in various ecological zones. This study documents and assesses the poisonous plant species in Sendri Village, located in the Jaijaipur block of the Sakti District, Chhattisgarh. Systematic field surveys along roadsides, wastelands, and agricultural fields identified 21 plant species that are toxic to humans and animals. These species predominantly belong to the families Apocynaceae, Fabaceae, Euphorbiaceae, and Solanaceae. Ethnobotanical investigations and literature reviews have shown that several of these toxic plants are also used by local tribal communities for traditional medicinal and ritualistic purposes, highlighting the relationship between indigenous knowledge and plant toxicity. Notable toxic species documented in this region include *Calotropis procera*, *Datura stramonium*, *Ricinus communis*, and *Nerium oleander*. Documenting the diversity and toxicological properties of these plants is crucial for public health awareness, local conservation efforts, and the safe and sustainable use of herbal remedies in traditional healthcare systems.

Keywords: Poisonous plant, sendri, Jaijaipur, plant diversity, toxic plant, Chhattisgarh

Introduction

Chhattisgarh, situated in central India, is recognized for its ecological richness and vibrant tribal culture. The state is home to many tribal communities living in forest areas and depending on forests for food, shelter, and medicine. These communities have traditional knowledge of medicinal and toxic plants, passed down through families and baigas. Poisonous plants are abundant in different regions of Chhattisgarh, and Sakti is a small district with diverse plant species. These plant species are not identified by most of the local people, and preschool children are particularly prone to accidental exposure to poisonous plants. In humans and animals, poisonous ingredients are ingested accidentally or intentionally. In animals, poisoning may occur under unfavorable conditions such as drought, pasture scarcity, and overgrazing. In humans, poisoning often occurs due to the accidental use of a toxic plant for edible purposes or for treating other ailments. All these plants can affect the whole plant body spectrum or the slightest quantity (Joshi B., Tiwari A. P., Sikarwar R. L. P., 2013) [5]. Plants contain a variety of toxic compounds commonly called "secondary compounds" that affect the behavior and productivity of wild and domestic animals. However, these poisonous plants contain active compounds with useful biological activities (McGaw L. J., and Eloff J. N., 2005) [12]. Some plants have physical defenses such as thorns, spines, and prickles; however, the most common type of protection is chemical (Keddy P. A., 2007) [7]. The documentation and study of poisonous plants have been a significant part of ethnobotany, pharmacology, and environmental science because of their dual toxicity and medicinal values. Many regions in India with rich biodiversity also harbor a variety of toxic plant species that can pose risks to humans and animals (Sharma R. A., Rao D.V., Sangwan S., 2010) [13]. Ethnobotanical research from tribal areas of the state has also highlighted that some of these toxic plants are used in traditional medicine in controlled quantities (Kushwaha N. K., Patel K., 2012). For example, the roots of *Gloriosa superba* are known to be highly toxic, yet they are traditionally used for various therapeutic purposes after

careful processing. Despite this, there is limited localized data on the exact distribution and frequency of these poisonous plants in specific villages or blocks, such as Sendri Village in Jaijaipur block. While studies on the toxic flora of Chhattisgarh exist, very few have focused on micro-level biodiversity assessments or the potential hazards posed to residents, particularly children and livestock. Furthermore, studies suggest that public awareness of toxic plants is generally low in rural areas, increasing the risk of accidental poisoning (Thakur M., Singh K., Khedkar R., 2018). Moreover, there is also a lack of community-based educational interventions or administrative measures aimed at managing or eradicating harmful plant species in public spaces.

A survey of literature indicates that several studies have been done or carried out on toxic plants in all parts of the world by Bernard (1988), Turner (1991), Campbell (2000), Knight (2001) [1, 2, 10, 15], etc. Sendri is a small village with different types of poisonous plants present, and these plants need to be documented and raise awareness among local people. The most common poisonous plants in the village are *Calotropis procera*, *Datura stramonium*, and *Argemone mexicana*. The present study was carried out in different areas of the village, such as the roadside, agricultural field, and the Kitchen Garden area, for the documentation and screening of poisonous plants and their ethnobotanical use by local people.

Materials and Methods

Study area

Sendri (Fig.1) is a village located in the Jaijaipur tehsil of Sakti district in Chhattisgarh, India. It is situated 13km away from the sub-district headquarters Jaijaipur (tehsildar office) and 46 km away from the district headquarters Sakti. Sendri is located at 21.7794598 N latitude and 82.8102443 E longitude. According to the Census 2011, the total population of the village is 1944, and the village spans a total geographical area of 551.62 hectares. 2. The people are predominantly scheduled cast, forming 65% of the population.

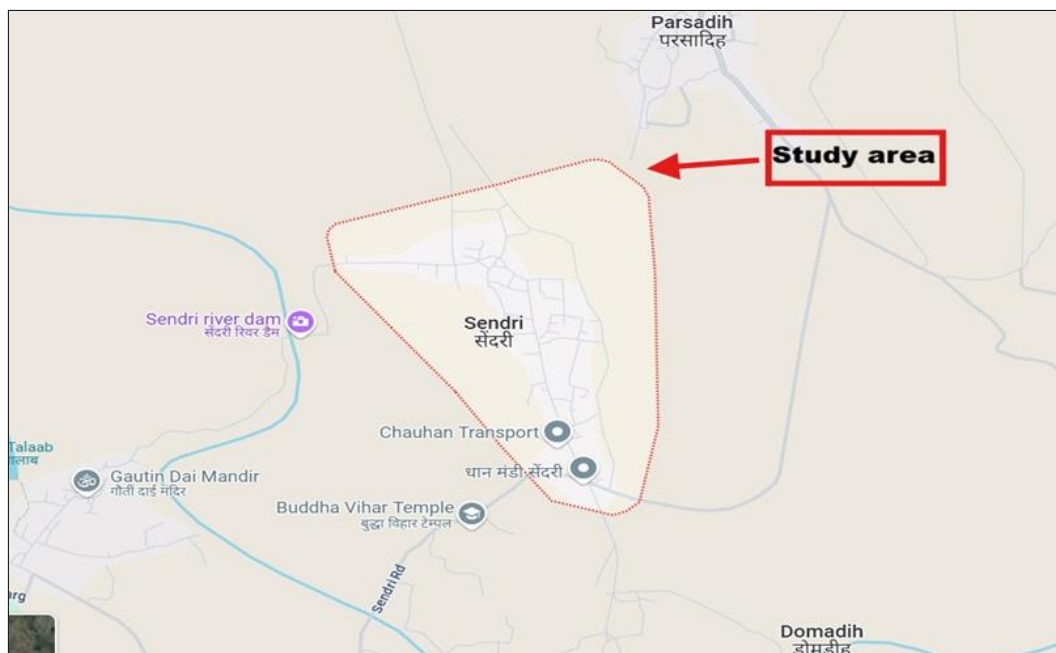


Fig 1: Study area, Sendri village

Data Collection

An extensive field survey was conducted in March and April 2025 in the village of Sendri in the Jaijaipur block of Sakti district. Collect information about poisonous plants from local people of various age groups in the village. The plant specimens have been studied and identified by using floras (Joshi B., Tiwari A. P., Sikarwar R. L. P., 2013 [5]; Kalita B. C., Tag H., Gogoi B. J., Hui P. K., 2017; Kiran B. R., Parisara N., 2016) [6, 9].

Result And Discussion

Table 1 displays information on poisonous plants in Sendri village. In this study, 21 plant species belonging to 12

families were recorded. Out of these 11 plant species are herbs, 4 climbers, 3 shrubs, and 3 trees (Fig.3). Apocynaceae is the largest family, having 7 poisonous plants followed by Euphorbiaceae having 3, and Solanaceae 2, and Papaveraceae, Convolvulaceae, Salicaceae, Dioscoreaceae, Fabaceae, Asteraceae, Anacardiaceae, Cucurbitaceae, Rutaceae, having a single one each (Fig.2). The most common toxic plant belongs to the families Apocynaceae, Euphorbiaceae, and Solanaceae. The major parts of the plant, including the entire plant body and its latex, are poisonous, and other toxic components such as the seeds, fruits, tubers, bark, and roots (Fig.4).

Table 1: List of poisonous plants found in Sendari village

S/n	Botanical name	Common name	Family	Habit	Poisonous parts	Mode of action
1.	<i>Calotropis gigantea</i>	Aak	Apocynaceae	Shrub	Latex, leave	Latex is injurious to the eyes and fish.
2.	<i>Calotropis procera</i>	Aak	Apocynaceae	Shrub	Latex	Intake of latex causes eye blindness, fish poison.
3.	<i>Casearia tomentosa</i>	Berri	Salicaceae	Tree	Fruits	Fruit juice causes breathing trouble and unconsciousness.
4.	<i>Catharanthus pusillus</i>	Kapavila	Apocynaceae	Herb	Latex and seed	Plants toxic to cattle cause temporary madness and blindness.
5.	<i>Catharanthus roseus</i>	Baro masiya	Apocynaceae	Shrub	Whole plant	All the alkaloids act as poisons to the heart.
6.	<i>Abrus precatorius</i>	Gunj	Fabaceae	Climber	Roots, seeds, and leaves	Chewing of seeds causes gastrointestinal irritation and vomiting
7.	<i>AL Estonia scholaris</i>	Saptaparni	Apocynaceae	Tree	Latex	Latex causes blindness
8.	<i>Argemone maxicana</i>	Satyanashi	Papaveraceae	Herb	Seeds	Intake of raw seed causes vomiting and diarrhea, followed by intense pain in the legs and all over the body.
9.	<i>Cuscuta reflexa</i>	Amarbel	Convolvulaceae	Climber	Whole plant	It causes depression, nausea, and vomiting
10.	<i>Datura metel</i>	Dhatura	Solanaceae	Shrub	Whole plant	Intake of seeds creates an effect on the mucus membrane
11.	<i>Datura stramonium</i>	Dhatura	Solanaceae	Shrub	Whole plant	Intake of the whole plant causes throat dryness and finally leads to coma.
12.	<i>Dioscorea hispida</i>	Dong kanda	Dioscoreaceae	Climber	Tuberess	Intake of large amounts causes paralysis of the respiratory system and even death.
13.	<i>Euphorbia tirucalli</i>	Pencil cactus	Euphorbiaceae	Shrub	Latex	In a small amount is purgative and in a large dose is irritant and emetic.
14.	<i>Jatropha curcas</i>	Ratanjot	Euphorbiaceae	Shrub	Seed	Seed pugative produces nausea, vomiting, and

						also causes burning in stomach.
15.	<i>Nerium oleander</i>	Kaner	Apocynaceae	Shrub	Whole plant	Intake causes a cardiac poison act as heart like digitalin
16.	<i>Parthenium hysterophorus</i>	Gajarghas	Asteraceae	Herb	Whole plant	Seeds and plants cause allergic reactions and dermatitis on contact.
17.	<i>Ricinus communis</i>	Arand	Euphorbiaceae	Shrub	Seed	Intake of seed causes vomiting, colic, and circulatory collapse.
18.	<i>Semecarpus anacardium</i>	Bhelwa	Anacardiaceae	Tree	Latex and fruits	Juice of fruits causes blisters on the skin and inflammation on the eyelids.
19.	<i>Cascabela thevetia</i>	Yellow kaner	Apocynaceae	Shrub	Whole plant	In some places, seed-eating is for suicide.
20.	<i>Trichosanthes dioica</i>	Parwal	Cucurbitaceae	Climber	Root	It is a hydrogogue and cathartic root cause of fatal poisoning
21.	<i>Zanthoxylum armatum</i>	Tejbal	Rutaceae	Shrub	Stem bark and fruits	Stem bark powder is used to poison the arrow

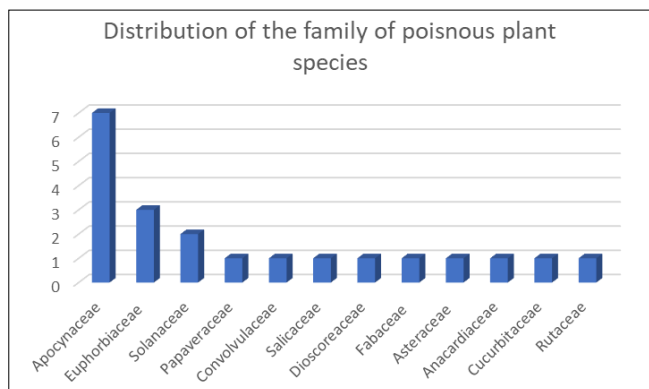


Fig 2: Distribution of the family of poisonous plant species

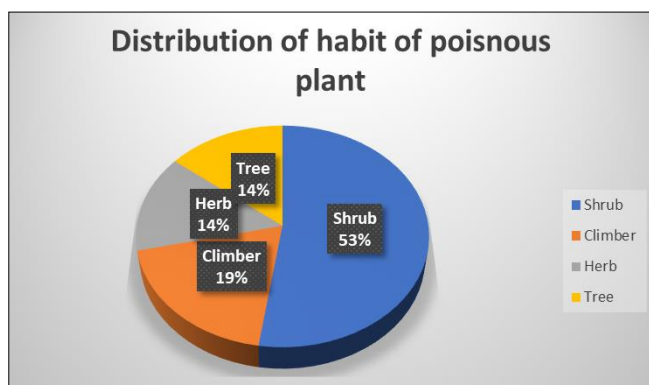


Fig 3: Distribution of the habit of poisonous plant species

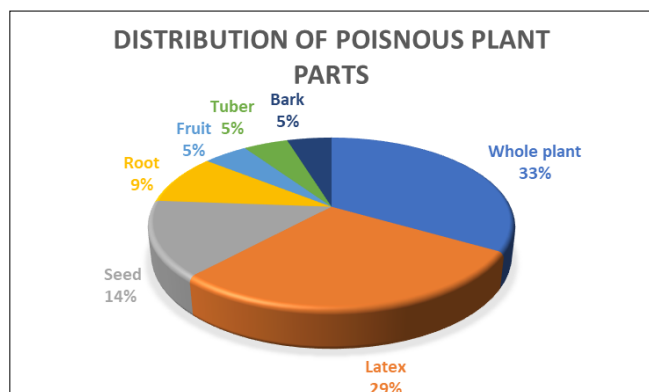


Fig 4: Distribution of poisonous plant parts

Conclusion

The present study documented 21 poisonous plant species from Sendri Village in the Jaijaipur block. These species have been identified as toxic to humans and animals. There

is a pressing need to keep such plants out of reach of children, senior citizens, and the general public. Additionally, poisonous plants growing along roadsides and in open spaces should be systematically removed by local administrations wherever feasible. These plants should also be excluded from indoor decoration.

Public awareness campaigns through various media channels are essential to inform communities about the presence of poisonous plants, their harmful effects, and basic first aid measures in case of accidental exposure. Interestingly, several of these toxic plants are also traditionally used for medicinal purposes by the local population, who continue to harvest them in Sendri village. Therefore, while recognizing their toxicity, it is also important to acknowledge the medicinal and economic values of certain species. These plants should be conserved and utilized sustainably and informed manner.

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