

## A preliminary survey of poisonous angiosperms of Rohilkhand region of Uttar Pradesh, India

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### Abstract

Poisonous plants comprise the third largest category of poisons known around world. An account of 41 poisonous angiosperms under 22 families occurring in Rohilkhand region of Uttar Pradesh (India) has been documented. In this survey, total nine districts were surveyed and collected the information of the poisonous plants that are grown, wild, planted, cultivated & naturalized of road sides, park avenues and gardens. The plants were identified with the help of different published floras and herbarium lodged in FRI & BSI, Dehradun and BSI Allahabad. The information on the poisonous plant's species has been gathered from the local people during ethno-botanical field survey. The study suggests that the local people are not only aware of such poisonous plants and their harmful effects, but also use them to treat various ailments.

**Keywords:** poisonous angiosperms, ethnomedicine, vaidya, rohilkhand region

### Introduction

Rohilkhand is a region of north-western Uttar Pradesh state of India. It lies between latitudes 27°35' to 29°58' N and 78°0' to 80°27' E longitudes. The name Rohilkhand was given by Ahmad Shah Abdali in 1748. The entire plain comprises of nine districts namely Bareilly, Budaun, Shahjahanpur, Pilibhit, Bijnor, Moradabad, Rampur, Sambhal and J.P. Nagar and has an area of about 25,000 Km<sup>2</sup> (10,000 square miles). It lies on the upper Ganges alluvial plain and an almost imperceptible change in elevation and uniform surface are the two noteworthy features in the physiography of the Rohilkhand. It is bounded by the Ganges River on the south and the west by Uttarakhand and Nepal on the north, and by the Awadh region to the east. The climate of Rohilkhand Region is predominantly subtropical, but weather conditions change significantly with location and seasons.

In India, the studies on poisonous angiosperms have been done by [1,3,4,7,11,13,15,16,17,18,20,21] on regional and national levels. Present study is the first of its kind to start exploring the

poisonous angiosperms and to document their harmful effects in Rohilkhand region of Uttar Pradesh.

### Methodology

Ethno-botanical field trips were conducted in different field areas and tribal areas of Rohilkhand region (fig. 1) during 2015-16. Personal Interview with local Vaidya and Ayurvedic doctors were conducted and information's about various toxic angiosperms, medicinal uses and their locations in Rohilkhand region were collected. The collected plants were identified with the help of literature, atlas and websites [2,8,9,10] and prepared herbarium [12] for future use.

### Enumeration

The plants are arranged alphabetically, each by its botanical name, followed by name of the family and local names in the table 1. The folk uses are described, with details of part(s) used and notes on poisonous symptoms.

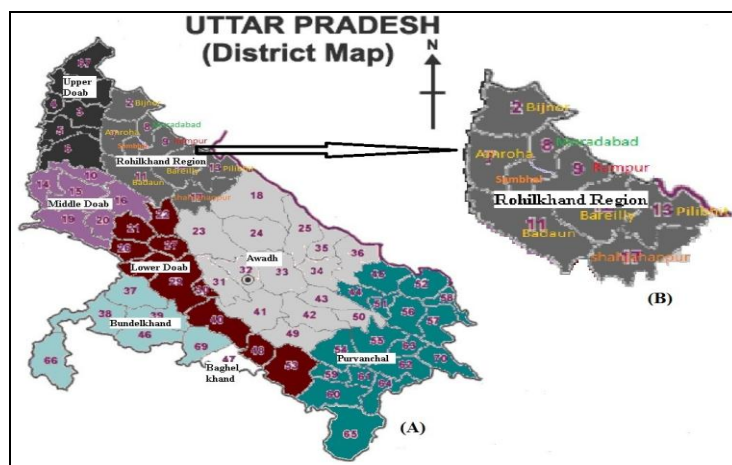


Fig 1: Map of U.P. (A) and Rohilkhand Region (B)

**Table 1:** List of Poisonous Angiosperms of Rohilkhand Region of U.P.

	Plant name	Family	Local name	Parts use	Description
1.	<i>Abrus precatorius</i> L.	Papilionaceae	Ratti	Seed	The seed powder is given to cattle in case of constipation but if given in higher doses or seeds are consumed accidentally by cattle in the field, it causes gastrointestinal irritation, nausea, vomiting, severe diarrhoea, trembling of legs. etc.
2.	<i>Ageratum conyzoides</i> (L.) L.	Asteraceae			Whole plant is used as fish poison
3.	<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Ness	Acanthaceae		Seed	Seed powder is used orally to counter snake poisons
4.	<i>Argemone mexicana</i> L.	Papaveraceae	Pilikateli	Seed	The seeds are emetic and narcotic: poisonous, if taken in large quantities.
5.	<i>Butea monosperma</i> (Lam.) Taub.	Papilionaceae	Dhak	Seed	Crushed seeds are used by the tribals as fish poison.
6.	<i>Calotropis gigantea</i> (L.) R.Br. ex Ait.	Asclepiadaceae	Safed akua	Bark, Leaf	Powdered bark is taken internally with water to expel intestinal worms. Leaves are also used as cattle poison.
7.	<i>Calotropis procera</i> (Ait) R.Br.	Asclepiadaceae	Akua, Madar	Latex	When latex mixed with ammonium chloride is slowly heated on hot iron plate very small quantity of the powder is given orally thrice a day for five days to cure tuberculosis but if given in higher in amount causes poisoning, intake of latex is fatal injurious to eyes causes blindness it is also used as fish poison.
8.	<i>Campsis radicans</i> (L.) Seem	Bignoniaceae)	Latkan	Pollens	This plant causes contact dermatitis.
9.	<i>Cassia fistula</i> L.	Caesalpiniaceae.	Pili latkan	Bark, Seed	The bark in made in paste with water and taken orally by women for premature abortion. Seeds and pulp of fruits are highly purgative, casus diarrhoea.
10.	<i>Catharanthus pusillus</i> (Murr.) Don	Apocynaceae	Jungli baramasi	Whole plant	Plant is toxic to cattle, causing temporary blindness or madness with rashes all over the body.
11.	<i>Catharanthus roseus</i> (L.) Don	Apocynaceae	Sadabahr	Whole plant	Plant juice is poisonous acts as poison to heart.
12.	<i>Commelina benghalensis</i> L.	Commelinaceae		Whole plant	Juice of whole plant is taken to treat nervous disorders but extra dose causes unconsciousness leading to death.
13.	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Amarbel	Whole plant	Intake of plant juice causes depression with nausea, vomiting and abortion Tribals mix the plant with folder to kill enemies.
14.	<i>Cyperus rotundus</i> L.	Cyperaceae	Motha	Fruit, Leaf	Young fruits are crushed and thrown in ponds to stupefy aquatic small creatures. Leaves and seeds produce sedative and narcotic action, large doses cause death.
15.	<i>Datura metal</i> L.	Solanaceae	Dhatura	Whole plant	If whole plant taken than it is toxic and narcotic: seeds are poisonous and used for committing crimes. Intake of the leaves, fruits and seeds causes fatal poisoning, dryness of throat, giddiness, hallucination and staggering: voice is unrecognizable and vision is affected and leads to coma.
16.	<i>Desmodium gangeticum</i> (L.) DC.	Papilionaceae	Satparni	Root, Seed	Root and seeds are taken separately after grinding in water to get rid of intestinal worms.
17.	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Vahrikand	Tubers	The tubers consumption in large quantities causes paralysis of the respiratory system and even death. Creates severe irritation in mouth. Tribals cut the tuber and place overnight in running water and cook as vegetable.
18.	<i>Dioscorea pentaphylla</i> L.	Dioscoreaceae	Kadakand	Tubers	The tubers are acrid and cause inflammation of mucous membrane of mouth. Tribals cut the tuber and place overnight in running water and cook as vegetable.
19.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Dudhi	Whole plant, latex	Extract of plant has sedative effect on the mucous membrane of the respiratory and genitourinary tract. The latex is injurious to eyes.
20.	<i>Euphorbia neriiifolia</i> L.	Euphorbiaceae	Thor	Latex, Root	The latex is acrid, purgative and causes dermatitis. Latex is injurious to eyes. Root decoction is used as abortifacient
21.	<i>Euphorbia tirucalli</i> L.	Euphorbiaceae		Latex, Root	Latex is poisonous, causes dermatitis. Intake of latex is fatal; injurious to eyes, causing blindness. Root decoction is used as abortifacient.
22.	<i>Gloriosa superba</i> L.	Liliaceae	kahihari	Root	Tuber extract mixed with <i>Solanum virginianum</i> L. root extract is used as abortifacient Intake of tubers is fatal. causes gastrointestinal irritancies, vomiting and purgation.
23.	<i>Jatropha curcas</i> L.	Euphorbiaceae	Ratanjot	Seed	The seeds are strong purgative. When consumed accidentally or incidentally by cattle or human beings especially children. Induces nausea, vomiting and sense of burning in stomach. Over consumption of seeds leads to unconsciousness.

24.	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Ratanjot	Leaf, seed	Leaves and seeds are purgative and poisonous. If grazed by animals, causes severe vomiting and death.
25.	<i>Lantana camara</i> L.	Verbenaceae	Makoi	Whole plant	Grazing of cattle causes severe injury to liver, profuse salivation, copious lachrymation. loss of appetite and ultimately death of the cattle.
26.	<i>Melia azedarach</i> L.	Meliaceae	Bakain	Fruit	The poisoning most often results from ingestion of toxic fruits containing uncharacterized resinous fraction. It causes severe Irritation, nausea and degeneration of the liver and kidney.
27.	<i>Moringa oleifera</i> Lam.	Moringaceae	Sehjan	Root, bark	The extract of the root bark causes severe skin inflammation and skin dermatitis. Root and stem bark are used as abortifacient.
28.	<i>Mucuna pruriens</i> (L.) DC.	Papilionaceae	Kamach	Pod hairs	Pod hairs when come in contact with skin produce itching & irritation and sometimes cause blister and dermatitis.
29.	<i>Nasturtium officinale</i> W.T.Aiton	Brassicaceae		Leaf	Leaf decoction is given to reduce hypertension. More quantity is poisonous and causes death.
30.	<i>Nerium indicum</i> Mill	Apocynaceae	Gulabilkaner	Root, seed	Root is poisonous; used for criminal and suicidal purposes; seeds are used to poison and kill enemy's livestock.
31.	<i>Parthenium hysterophorus</i> L.	Asteraceae	Gajarghas	Pollens, seed	Pollens and seeds cause eczema and allergic dermatitis on contact. If consumed by livestock, causes severe diarrhea followed by death with severe ulceration in the liver, Gastrointestinal tracts and kidney.
32.	<i>Pedilanthus tithymaloides</i> (L.) Poir	Euphorbiaceae		Latex, Root	Latex and root is poisonous causes vomiting, skin inflammation and skin itching. The latex is injurious to eyes.
33.	<i>Persicaria hydropiper</i> (L.) Spach.	Polygonaceae.	Bishkatali.	Whole plant	Juice of the plant is a common remedy against enlarge liver, gastric ulcer, dysentery and for premature abortion.
34.	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Jangli tambako	Root	Root decoction causes severe skin inflammation, skin itching and gastrointestinal poison. Root paste applied externally to treat various skin disorders.
35.	<i>Pongamia pinnata</i> L.	Papilionaceae	Karanj	Leaf, seed, root	Poultice of leaves is used to remove larva (maggots) from ulcers in animals. Seeds and roots are said to be poisonous to fish.
36.	<i>Ranunculus sceleratus</i> L.	Ranunculaceae	Jaldhania	Whole Plant	The whole plant is acrid, mildly pain-relieving, and antispasmodic, induces sweating, promotes or assists the flow of menstrual fluid and causes irritation to the skin.
37.	<i>Ricinus communis</i> L.	Euphorbiaceae	Arandi	Seed	Intake of higher doses of seed oil is fatal with symptoms of vomiting, colic, gastroenteritis and circulatory collapse; in small quantity cure constipation.
38.	<i>Cassia occidentalis</i> L.	Caesalpiniaceae		Pod	Accidental consumption of pods by humans causes vomiting, nausea, fever, purgation and ataxia.
39.	<i>Solanum virginianum</i> L.	Solanaceae	Ringni	Root	Root decoction with jaggery is given to ladies in abolish and for abortion of up to 5 months old foetus. More quantity is poisonous and causes death of mother.
40.	<i>Urginea indica</i> (Roxb.) Kunth	Liliaceae	Jangli- kanda	Bulb	Excessive consumption of bulb is poisonous causing nausea, strangury and bloody urine. often suppression of urine, gastroenteritis, convulsion of heart and paralysis, followed by death.
41.	<i>Xanthium strumarium</i> L.	Asteraceae	Gokhru	Leaf, fruit	Leaves produce skin disease in susceptible persons. Pre-fruiting plant causes itching and sores through contact.

### Conclusion

The paper deals with 41 poisonous angiosperm species belonging to 22 different families. The poisonous parts of majority of plant species. Were seeds, root, leaves and whole plant. Besides these, poisonous parts of some plants were fruits, bark, pollens, latex, tubers or bulb. Some plants cause poisoning to both human beings as well as livestock population, while some causes poisoning to human being only. They may cause serious health problems and sometimes death. The documentation of these plants creates more awareness to the people as to take care while consuming and used as alternative medicine. Further studies are needed to determine the identity of toxic phytochemicals present in the poisonous angiosperms.

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