

Ethnobotanical studies on weeds of wheat fields in Pakur

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ABSTRACT

Weeds are plants that are unwanted in a certain area and may pose a risk to public health or negatively impact the economy. Compared to other plants, weeds are more adaptable and possess peculiar traits that increase their competitive advantage. Due to their competition with crops for resources like water, minerals, light and space, weeds are a serious problem in agriculture and significantly reduce productivity. The ideal circumstances of high fertility and plenty of soil moisture have led to lush weed growth. Weeds are now frequently regarded as agricultural pests since they can lower crop productivity and increase production costs in a variety of ways. In addition to being rich in plant variety, the recent study indicated that wheat crop fields are also rich in socioeconomic values contained inside the plants. These weedy plants are also beneficial in a variety of ways, since some of their species are utilized as attractive plants, vegetables, or even medicines. These weeds can be taken and utilized from agricultural ground. Following their removal from the wheat field, the weeds were identified with the assistance of subject matter experts and the surrounding flora. Some of the important weed species which were found in the wheat field are *Chenopodium album*, *Oxalis corniculata*, *Melilotus indicus*, *Rumex dentatus*, *Amaranthus spinosus* etc. In the present communication weed found in the wheat field at Pakur has been discussed in detail.

Key Words - Weed, Agriculture, productivity, medicine, vegetable

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INTRODUCTION

Although weeds can develop in any season and in any kind of weather, the monsoon season is the most favourable for their growth (Bhaskar *et al.*, 2015). Wheat (*Triticum aestivum* L.) is India's second-most significant food crop after rice, weeds typically overrun wheat fields. One of India's main staple crops, wheat (*Triticum aestivum* L.), makes a substantial contribution to both the agricultural economy and food security of the nation. Wheat farming is essential to maintaining farmers' livelihoods in Jharkhand. However, weed infestation is a recurring problem that has a negative impact

on wheat quality and production, resulting in large output losses. Due to their competition with crops for resources like light, water, and nutrients, weeds can reduce crop yields by 20–70%, depending on the density and composition of the weed flora (Chauhan *et al.*, 2023). It has been realized that medicinal weed plants play an important role in traditional medicinal system and used in the preparation of many medicines to cure the various diseases and other medicinal purposes (Kumar Rakesh *et al.*, 2021). Hand weeding and mechanical weed management were the major weed

management tools used by the farmers, prior to the initiation of research on herbicides in 1948 with 2,4-D in India (A. N. Rao, 2018). Among many weeds, little seed canary grass (*Phalaris minor* Retz.) is widespread in wheat cropping system of India. Due to its strong competitive ability with wheat, it can cause 10-50% yield losses (Ranjit *et al.*, 2006). Weeds are among the important biotic factors affecting the wheat production (Amita *et al.*, 2022). Many weedy plants, like *Amaranthus spinosus* L. which has an alkaloid that aids in the treatment of ulcerated mouth, ulcers and sores, have been shown to contain various phytochemicals (Devi *et al.*, 2023).

To overcome this problem to some extent, it is proposed to use these weeds instead of throwing them. Keeping this in view such losses can be compensated by exploring the medicinal utility of such weeds (Sahu, 1983).

OBJECTIVES

- To identify and document the weed species which are present in wheat field, recording their local names and distribution.
- Record knowledge about these weeds' edible, medicinal, livestock fodder or other uses.
- Estimate the traditional and economic importance of weeds that are often considered useless but have great value.
- Preserve indigenous knowledge that are usually passed down through word of mouth and is at risk of being lost due to modernization.
- Promote sustainable agriculture by showing useful weeds that can be managed rather than eradicated.

LITERATURE REVIEW

The use of weed plants in India has been widely documented. A study by K. U. Ekwealor (2019) Weeds, among the myriads of their beneficial properties, can be important sources for new pharmaceuticals and medicine for indigenous people and can have both nutritional role and health benefits.

In Jharkhand, these weeds are no more unwanted plants rather a boon for mankind specially pharmaceuticals industries as they contain chemicals that found are valuable for making drugs of many severe ailments (Mitali Gupta, 2022). The weeds are both useful as well as harmful, further there is a need to explore the potential use of these weeds viz. in medicine, as fodder, as food etc. (P. Mukherjee, 2011).

MATERIALS & METHODS

STUDY AREA

Pakur district situated in the north-eastern part of Jharkhand. Earlier it was a part of Santhal Pargana district and when Sahibganj became a separate district, it became one of its sub-divisions. Pakur became a district on 28th January, 1994. It is located at 24°49' N to 24°14' N latitude and 87°24' E to 87°55' E longitude. Pakur is the administrative headquarters of this district. The district is bounded on the North by Sahebganj district, on the south by Dumka district, on the west by Godda district and on the east by Murshidabad district of West Bengal. Pakur district consist of 6 blocks. The following are the list of the blocks in Pakur district- Pakur, Maheshpur, Hiranpur, Littipara, Amrapara, Pakuria. The district with a population of 900,422 (census 2011), and covering an area of 686.21 km², this gives it a ranking of 465th in India (out of a total of 640).





Source : www.mapsofindia.com

Methodology is the methodical, theoretical examination of the methods functional to a field of study (Swarooprani, 2022). The current study focuses on the indigenous knowledge surrounding the ethnobotanical use of weed plants by the Pakur locals. A comprehensive review of literature of the district prior ethnobotanical and floral reports was conducted prior to the field visit. In order to obtain the majority of the plants in their circumstances, rural locations were visited in the cropping season. The informants were selected during the visit using a standardised questionnaire. The approach was used as outlined by Chadwick and Marsh, (1994) and Jain, (1999).

In district Pakur, farmers prepare the soil for wheat cultivation in early November. Sowing begins in late

November and lasts all the way through early December. Weeds often emerge as seedlings in the middle of December and grow steadily in the chilly months of December and January. In the next two months there is a period of rapid vegetative and reproductive growth. In any case, not every weed grows or matures at the same rate or appears at the same time. The final week of April is often when wheat harvesting begins. Most weeds are at the drying or post reproductive stage of their life cycle.

RESULT & DISCUSSION

Ethnobotanical information is helpful for the people. The survey was carried out between November, 2024 and May, 2025 to gather data regarding the customary applications of the plants that grow as weeds in local wheat field. 16 sites were chosen, and wheat fields were visited on a regular basis. This survey has revealed the occurrence of 22 species of Angiosperms. They are distributed over 10 families. Asteraceae, Poaceae, Fabaceae are the dominant families in the recorded weed flora. According to conventional procedures, plant specimens were gathered, dried and conserved. The plants were categorized based on their utility (food, fuel, veggies, medicine, fodder etc.). Local name, local uses, recipe preparation, parts utilized, occurrence, individuals involved in the collecting and other relevant information are among the details gathered from locals.

Many of these weeds are found to be used in different manner by the local people. These include a good number of medicinal plants, fodder, edible ones etc.

Table 1- List of weeds used domestically or medicinally by the human being

S.N.	Botanical Name	Family	Local name	Habit	Parts used	Domestic /Medicinal uses
1.	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Hirankhuri	Herb	Whole plant	Fungal infection
2.	<i>Chenopodium album</i> L.	Chenopodiaceae	Bathua	Herb	Whole plant	As vegetables
3.	<i>Cynodon dactylon</i> (L.) Pers	Poaceae	Durva	Herb	Whole plant	To stop bleeding, antimicrobial, treat wounds
4.	<i>Oxalis corniculata</i> L.	Oxalidaceae	Sleeping beauty, khatti booti	Herb	Whole plant	In dysentery, poisonous bites
5.	<i>Anagallis arvensis</i> L.	Primulaceae	Red chickweed	Herb	Whole plant	Skin infection
6.	<i>Rumex dentatus</i> L.	Polygonaceae	Wild palak	Herb	Leaves, root	As vegetables, treat eczema

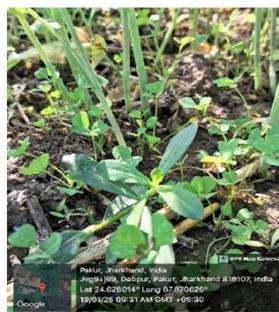
7.	<i>Melilotus indicus</i> (L.) All.	Fabaceae	Wild Methi	Herb	Whole plant	As fodder, green manure, treat swelling
8.	<i>Enhydra fluctuans</i> Lour.	Asteraceae	Helenchia	Herb	Leaves	As vegetable, treat inflammation
9.	<i>Xanthium strumarium</i> L.	Asteraceae	Chirchita	Herb to shrub	Seeds, leaves	Nasal sinusitis, gastric ulcer
10.	<i>Coronopus didymum</i> (L.) Sm.	Brassicaceae	Jangli hela	Herb	Leaves, stems	As vegetables, treat cough
11.	<i>Sisymbrium irio</i> L.	Brassicaceae	Jangli sarso	Herb	Seed, leaves	As wound cleaner, treat voice disorder
12.	<i>Lathyrus aphaca</i> L.	Fabaceae	Junglee matar	Herb	Leaves, immature seed	As fodder, treat teeth pain
13.	<i>Vicia sativa</i> L.	Fabaceae	Ankra	Herb	Seed	As fodder
14.	<i>Parthenium hysterophorus</i> L.	Asteraceae	Congress grass	Herb to shrub	Whole plant	Treat malaria, fever
15.	<i>Centaurea melitensis</i> L.	Asteraceae	Malta	Herb	Leaves	Treat to reduce fever
16.	<i>Alternanthera phyloxeroides</i> (Mart.) Griseb	Amaranthaceae	Nali ghas	Herb	Leaves	As vegetables, stimulate milk secretion
17.	<i>Rumex spinosus</i> L.	Polygonaceae	Devil's thorn	Herb	Leaves, roots	Treat skin issues
18.	<i>Phalaris minor</i> Retz.	Poaceae	Gehu ka mama	Herb	Seed	Fodder, Bird seed
19.	<i>Cenchrus ciliaris</i> L.	Poaceae	Dhaman grass	Herb	Whole plant	Livestock fodder, heal wound
20.	<i>Ruellia tuberosa</i> L.	Acanthaceae	Patpati	Herb	Root, flower	Manage kidney stone, as natural dye
21.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Kantanote	Herb	Whole plant	As vegetables, treat for diabetes
22.	<i>Digitaria sanguinalis</i> (L.) Scop,	Poaceae	Ghas	Herb	Whole plant	As livestock, treat general weakness



Rumex spinosus L.



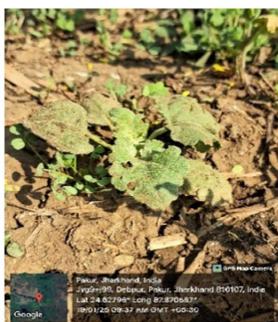
Chenopodium album L.



Enhydra fluctuans Lour.



Digitaria sanguinalis (L.) Scop.



Xanthium strumarium L.



Anagallis arvensis L.



Parthenium hysterophorus L.



Phalaris minor Retz.



Ruellia tuberosa L.



Sisymbrium irio L.



Oxalis corniculata L.



Vicia sativa L.

CONCLUSION

Ethnobotanical studies of weeds of different wheat crop fields reveal that these plants, which are often considered useless, have immense traditional significance. Local people use several weeds for food, medicine, fodder and other needs. The varieties commonly removed during weed removal are known to treat diseases such as fever, diabetes, respiratory problem, skin diseases reflecting local knowledge passed down through generations.

The result indicate that weeds contribute to biodiversity in fields and play a vital role in village livelihoods. Their ethnobotanical uses suggest that complete eradication of weeds could leads to the loss of precious floras and traditional knowledge. Therefore, documenting and preserving this knowledge is necessary not only to preserve culture but also to identify potential sources of new medicines and sustainable farming methods. Incorporating ethnobotanical sightedness into weed management techniques can increase both ecological balance and socio-economic advantage for farming people.

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