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Full Length Research Paper

Piscicidal and Fish Stupefying Plants used by Tribal people living around Panchakot hills, Purulia, West Bengal, India.

Subrata Raha[1] and Harasourav Mallick[2]

[1]-Assistant Professor and Head, Department of Botany, Raghunathpur College, Purulia, West Bengal, India.

[2]-Guest Professor, Department of Botany, Raghunathpur College, Purulia, West Bengal, India.

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Corresponding Author
Harasourav Mallick
Guest Professor, Department of Botany, Raghunathpur College, Purulia, West Bengal, India.

Abstract
The forest resources of Panchakot Hills provide substantial quantity for livelihood ranging from food, fodder, fuel, timber, medicine etc. to the local inhabitants. Use of fish poison is a old practice among the tribal all over the world. The Piscicidal and fish stupefying plants used mostly by Santhal tribe lives in different villages around Panchakot hills, located at the northern boundary of Purulia district have been documented. The Survey work was carried out in different villages around Panchakot hills, Purulia district in different seasons from October 2014 to November 2015. Altogether 21 fish stupefying plants were collected, identified and preserved as herbarium sheets. Their flowering season and used parts were also recorded.

Keywords: *Fish poison, Plants, Santhal tribe, Panchakot, Purulia.*

Introduction

Fishing with the aid of poisonous plants was formerly very common[1]. Today this easy and simple method of fishing is forbidden but still practiced in remote areas[2]. The poisonous ingredients are crushed and thrown into swallow pond and waterlogged corners of Panchet dam, particularly during summer. After a time interval the fish begin to rise to the surface of the water and can readily be captured by hand. Fish stupefying plants are used mainly by Santhals lives in different villages around Panchakot hill . Some of these toxins paralyze fish, others work by reducing oxygen content in water[3].The process of documenting many fish toxins and their use is ongoing, with interest in potential uses from medicine and industry [4].

Materials and Methods

Study area

Panchkot was a part of an ancient East Indian kingdom known as Rajchakla Panchkot locally known as *Panchet.* The Panchet hill, located on the northern boundary of Purulia district is about 2100 ft in altitude and 18 Sq km in stretch (Figure 1). The villages namely, Kochbel, Pahargora shihulibari, Paghmara, Paharibera, Nutundih, Parbatpur and Ankduara, situated at the foothill of Panchakot Hills were selected as study area for the present survey. The Panchet dam with Hydel power station on Damodar river is located on the western side of the hill.

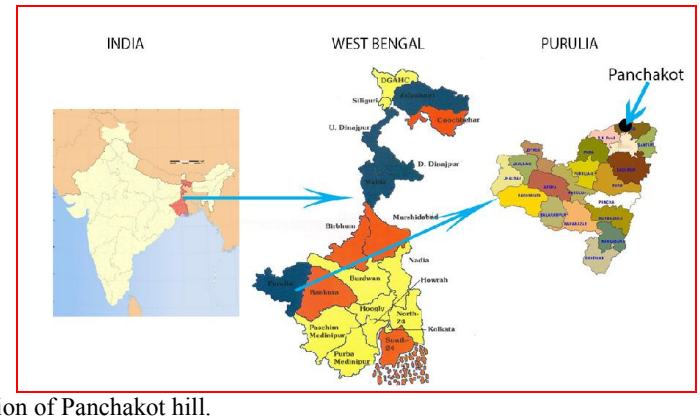

Fig 1. Map showing the location of Panchakot hill.

Materials and Methods

The forest resources of Panchakot Hills provide substantial quantity for livelihood ranging from food, fodder, fuel, timber, medicine etc. to the local inhabitants. This area is famous for its rich biodiversity and a treasure house of Medicinal plants. The villages namely, Kochbel, Pahargora, Shihulibari, Baghmara, Paharibera, Nutundih, Parbatpur and Ankduara, situated at the foothill (Figure 2) were frequently visited in different seasons from October 2014 to November 2015 for survey work. The study

mainly includes plant collection, identification, individual and group discussion with local people and herbaria preparation of collected samples.

Results and Discussion

The plants used by the Santhal tribes of this region along with their family, habit, local name and parts used for capturing fishes is listed in Table 1. The photographs of some fish poisoning plants are also given in Plate 1.

Fig. 2 Study area (Villages located at the base of Panchakot hill).
Source: Google earth (edited)

S No.	Scientific Name	Family	Habit	Local Name	Parts Used
1.	*Acacia chundra* (Rottler) Willd.	Mimosaceae	Tree	Laal Khair	Bark and leaves
2.	*Calotropis gigantea* L.	Asclepiadaceae	Herb	Akanda	Root
3.	*Casearia elliptica* Willd.	Flacourtiaceae	Small tree	Chorcho	Fruit
4.	*Cassia fistula* L.	Caesalpiniaceae	Tree	Sodal	Stem bark
5.	*Cordia dichotoma* Frost. F.	Boraginaceae	Tree	Buch	Leaf & fruit
6.	*Costus speciosus* (Koenig.) Sm.	Zingiberaceae	Herb	Kamuk	Rhizome
7.	*Drimia indica* (Roxb.) Jessop	Liliaceae	Herb	Bon Piyaz	Bulb
8.	*Gardenia latifolia* Soland.	Rubiaceae	Tree	Popro	Stem bark
9.	*Gloriosa superba* L.	Liliaceae	Climber	Ulatchandal	Tuber
10.	*Haldina cordifolia* (Roxb.)	Rubiaceae	Tree	Kelkadam	Stem Bark
11.	*Helicteres isora* L.	Sterculiaceae	Shurb	Ant-mochra	Bark
12.	*Holarrhena pubescens* (Buch – Ham.)	Apocynaceae	Tree	Indrajab	Stem Bark
13	*Holoptelea integrifolia* Roxb.	Ulmaceae	Tree	Chhalla	Leaf
14.	Hybanthus enneaspermus (L.) F.V.Muell.	Violaceae	Herb	Khetpapra	Whole plant
15.	*Madhuca indica* J.F. Gmel	Sapotaceae	Tree	Mahua	Seed
16.	*Plumbago zeylanica* L.	Plumbaginaceae	Herb	Tutta	Root
17.	*Polygonum barbatum* L.	Polygonaceae	Herb	Panimarich	Leaf
18.	*Pongamia pinnata* L.	Fabaceae	Tree	Karanja	Seed
19.	*Schleichera oleosa* (Lour.)Oken	Sapindaceae	Tree	Kusum	Seed & stem bark
20.	*Strychnos nux-vomica* L.	loganiaceae	Tree	Kuchla	Seed
21.	*Vetilago denticulata* Willd.	Rhamnaceae	Woody Climber	Bonga-Sayam	Stem bark

Table 1. List of fish poisoning plants

Some of the more common piscicidal plant species reported in the literature include the following[3]:
Casearia elliptica, Gardenia latifolia, Holarrhena pubescens, Madhuca indica, Plumbago zeylanica Polygonum barbatum, Schleichera oleosa, Strychnos nux-vomica etc.

Fig. 3. A: Some fish stupefying plants; **B:** Panchakot Hill (southern side)

Most of the old villagers of Kochbel village reported that the leaf extract of *Casearia elliptica* and the fruit extract of *Cordia dichotoma* gives the best result for the said purpose. The active components have been found in the root, seed, bark, stem, or leaves of identified plants. In addition, other plants with fish poisoning properties have been discovered in plants closely related to known piscicidal species.

Conclusion

Some of the Plants commonly used for fish poisoning are also used to kill rats and poisoning arrowhead[5]. Most of the plants used in fish poisoning have medicinal values too, so storage and further development of their germplasm should be ensured. These piscicidal plants may be useful in developing eco-friendly method to eradicate unwanted fishes from the aquaculture ponds without using any hazardous chemicals. The further studies regarding the chemical nature of the poison and their mode of action on molecular and biochemical basis is required.

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