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Ethnomedicinal use of certain fish species by ethnic groups of Bishnupur District in Manipur, NE India

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ABSTRACT

Certain fish species, despite their importance as food, have been used in preparation of a number of ethno-medicinal concoctions. The present study reveals the utilization of 21 species of fishes belonging to 11 families and 18 genera by the ethnic groups of Bishnupur District of Manipur in preparation of ethno-medicines. The flesh of these fishes is consumed to cure some ailments and also to provide nutrients such as proteins, steroids, vitamins and minerals. Fish species frequently used for the purpose mentioned above belong to the following genera, namely Aorichthys (1 sp.), Anguilla (1 sp.), Barilius (1 sp.), Catla (1 sp.), Channa (1 sp.), Clarias (1 sp.), Colisa (1 sp.), Esomus (1 sp.), Eutropiichthys (1 sp.), Heteropneustes (1 sp.), Hilsa (1 sp.), Labeo (2 sp.), Mastacembelus (1 sp.), Monopterus (1 sp.), Mystus (1 sp.), Osteobrama (2 sp.), Puntius (1 sp.) and Wallago (1 sp.).Modes of administering the medicinal concoctions of fishes are described.

Keywords: *Traditional knowledge, Ethno-medicine, fish as medicine, Manipur, Northeast India.*

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INTRODUCTION

The use of animals by human beings for various purposes dates far back to the early times of the human race. There has been a revival of interest in the study and the use of medicinal properties of animals by the ancient people. Different groups of indigenous people around the world used fish for treatment of different ailments. Ethnic groups of people with a close proximity to the natural resources had a deep knowledge of resources used as food and medicine, for trade and ritual practices (Berkes *et. al.* (1998).

Numerous literatures on ethnoichthyology provide evidence that both river and marine small-scale fishermen had well-established knowledge of fish biology and classification (Johannes 1981; Begossi and Garavello 1990; Paz and Begossi,1996; Poizat and Baran, 1997). Some other literatures reveal the Ethnobiological importance and use of fishes, insects and plants in preparation of a number of ethnomedicinal concoctions (Posey, 1981). According to Hunn (1993) and Huntington (2000), fishers have been providing important information on the biology and ecology of fishes, fishing resources, and even about the aspects on which scientific knowledge is lacking, such as reproduction, migration and trophic interactions.

The traditional medicinal knowledge of the indigenous people across the globe has played an important role in identifying living organisms which are used in treating livestock and human health problems, and loss of this knowledge may exert a significant adverse impact on the development of modern medicine (Yirga *et al*. 2011). Hence, it is important to document, as much as possible, the traditional knowledge of various ethnic communities which are on the verge of losing their socio-economic and cultural characteristics (Alves and Rosa, 2005; (Silvano *et. al*. 2007; 2008 & 2009). Some workers are giving increasing attention on animals as a source of new medicines (Anonymous, 1952; Azmi and H. K., 1989). Ethnozoological practices among the different ethnic groups of people are traditional in nature, and these works miraculously in relieving both common as well as severe kinds of diseases and ailments (Amano, K, 1974; Alves, R. R., and Souto W. M., 2011).

AIMS AND OBJECTIVES

The present work is an endeavour to study the ethnomedicinal use of certain fish species by the ethnic communities of Bishnupur District in Manipur, NE India in the treatment of various ailments and diseases and to document the findings for further studies on the ethnozoological aspects.

Study site:

Manipur is a small state located in north-eastern part of India, stretching from 23^0 83'N to 25^0 68'N latitude and 93^03'E to 94^078'E longitude. It has a geographically unique topography with a centrally located valley of about 1,843 sq km out of a total area of 22,356 sq. km. The remaining portion comprises hilly areas surrounding the central valley. The State has a large proportion of tropical rain forests in the hilly regions and a number of rivers and lakes including the Loktak Lake in the valley area. The Loktak Lake, which is also the largest freshwater lake in India, has been recognized as one of the

'Ramsar sites' (Singh, T. H. and Singh, S. R. K, 1994) a wetland of International importance under the Ramsar Convention since 1990. In addition to such unique topography, the state is also adorned with numerous varieties of flora and fauna, some of which are endemic to this region (Annandale, Hora and S.L. (1921). These unique features of the State have resulted to the recognition of Manipur as one of the biodiversity hotspots of India.

Bishnupur district is located in the South Western part of the valley region of Manipur State (Fig. 1). The district has a total area of 530 sq. km stretched from $93^0$43' E to 93.53^0 E longitudes and $24^0$18' N to 24.44^0 N latitudes. It is situated at an altitude of 800 metres amsl. It is bounded by Imphal West district on the North, on the South and the west by Churachandpur and Senapati districts. On the East, the district is bounded by Imphal West and Thoubal districts(Census population, 2001). The original name of Bishnupur District was *Lumlangdong*, now called *Lamangdong*. The district is endowed with a number of aesthetically as well as ecologically important locations such as the Bishnupur Ecological Park, the Keibul Lamjao National Park, and the Loktak Lake, which is the largest freshwater lake in eastern India. Keibul Lamjao National Park is the only natural home of the endangered Brow-antlered deer "Sangai" (*Rucervus eldi eldi*).

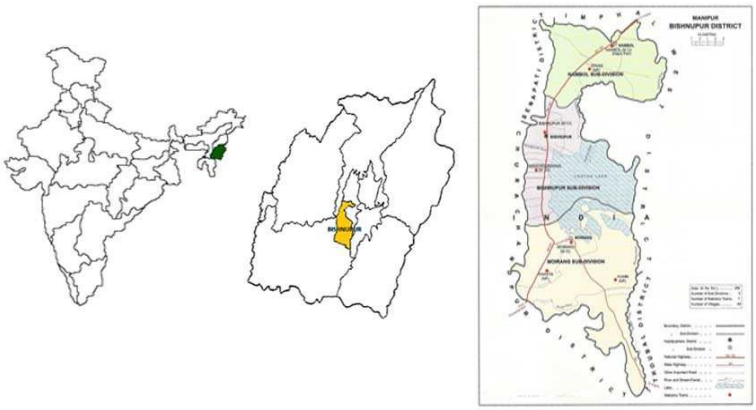

Fig 1: Bishnupur District, Manipur

The most part of the Loktak Lake remains covered by floating marshes or mats, locally known as "Phumdi", which makes the lake look green in colour. The maximum thickness of the floating mats together with the portion submerged in water is upto 1 metre. The phumdi is made up of the stem and roots of plants growing on it, together with debris and mud clinging to the lower portion of the mat (Beenakumari & Manihar, 2007). The total number of plants growing on the phumdi is 73, many of which are with medicinal values.

Majority of the people residing in Bishnupur are Meiteis, the most prominent ethnic group of Manipur. Manipur is known for its ecologically distinctive and rich biodiversity, having many endemic flora and fauna and also known for its valuable heritage of herbal medicinal knowledge. The people follow Hinduism and hence, are Vaishnavites. There are several other tribes and communities living in Bishnupur district, namely, the Meitei Pangals (the Manipuri Muslims), Chothe, Kabui, Kom, etc. Agriculture and fishing are the main sources of livelihood for the people of Bishnupur District. The ethnic people are highly dependent on ethnomedicinal tradition of using of fish in meeting their health care needs.

Ornamental fishes are also used in traditional treatment of diseases by ethnic people (Vishwanath, W, 2000, 2002). In most of the rural areas, ethnic people are totally dependent on local traditional medicinal system for their health care. So, they use their traditional knowledge for medicinal purpose and this knowledge is passed through oral communication from generation to generation (Jaroli *et al*., 2010; Yuhlung and Bhattacharyya, 2014). Till now, traditional knowledge of these different ethnic groups vis-a-vis the use of certain fishes in the treatment of diseases and ailments in Manipur has not been studied in detail. Hence, the present work has been taken up.

MATERIALS AND METHODS

Ethnomedicinal surveys were carried out by visiting the different ethnic groups of Bishnupur district of Manipur belonging to the Meiteis (Moirang, Thanga, Karang, Kumbi and Nambol), Meitei Pangals of Litanpokpi and Kwakta village, certain tribes, viz. Chothe (Lamlanghupi), Kabui (Nambol) and Kom tribes (Moirang-maninghao). Data was collected using semi-structured questionnaires for indigenous people, local medicinal practitioners, old men and women through oral conversations. Prior Information Consent (PIC) was obtained before collection of data was carried out from local informants. Cultural and religious occasions of ethnic groups were attended to record the use of fish in traditional rituals associated with beliefs and myths, etc. (Pubashree *et .al*. 2012). The information was entered in a datasheet for the ease of analysis.

RESULTS

The present investigations revealed the use of 21 species of fish belonging to 18 genera and 11 families as traditional medicine by the different indigenous ethnic communities of Bishnupur District, Manipur, belonging to the Meiteis, Meitei Pangals (Muslims), certain tribes, viz. Chothe, Kabui and Kom tribes. The Meitei communities exhibited the most elaborate use of fish for medicinal purposes. Fishes used in medicinal purposes were consumed raw, roasted or cooked. Some of the species are commonly used by all the ethnic communities of Bishnupur district of Manipur, N.E. India. It has also been

found that the tradition of Ethnomedicinal use of fish is still prevailing among the ethnic people of the District. The findings on therapeutic uses of 21 (twentyone) fishes used by ethnic communities of Bishnupur district of Manipur, N.E. India are shown in Table 1 below:

Table no. 1: Therapeutic uses of 21 (twentyone) fishes used by ethnic communities of Bishnupur district of Manipur, N.E. India

Sl	Scientific name	Family	Local name	Parts used	Therapeutic uses	Diseases/ailments
1	*Aorichthys seenghala* Sykes	Bagridae	*Ngachou*	Liver, eye, bile	Boiled liver and decoction of eyeball used as remedy for night blindness. Crushed bile taken along with water for chronic fever.	Night blindness, chronic fever
2	*Anguilla bengalensis*	Anguillidae	*Ngaril leina*	Whole body	Cooked with *Stellaria media* ***(****Yeirum-keirum)*& orally taken as soup once daily for two weeks.	Piles & Meningitis
3	*Barilius bendelisis*	Cyprinidae	*Ngawa*	Whole body	Cooked with pieces of *Pinus insularis (*Uchan)* and *Murdania nudiflora (*Tandal pambi)* and water without oil.	Constipation, deworming
4	*Catla catla*	Cyprinidae	*Bao*	Operculum	Crushed operculum is made into a paste and applied to the affected area.	Ripenining of boils.
5	*Channa orientalis*	Channidae	*Meitei ngamu*	Whole body	Cooked with *Cissus adnata(*Kongngouyen)* as curry once a week for one month	Stone case; opening of swelling/boil inside the body
6	*Channa striatus*	Channidae	*Ngamu porom*	Whole body	Boiled with *Clarias batrachus* as soup.	Vitamins and general body tonic.
7	*Clarias batrachus*	Claridae	*Ngakra*	Whole body, except skin.	Boiled with *Emblica officinalis (*Heikru)* and *Allium sativum (*Chanam);* the mixture obtained is used as soup at least once or twice a day for about ten days.	Anaemia, Malnutrition.
8	*Colisa sota*	Belontidae	*Tombema, Phetin*	Whole body	Sundried fish is crushed with *Alocassia indica (*Hongngoo)* and made into a fermented paste.	Diet for the women in the post delivery period.
9	*Esomus danricus*	Cyprinidae	*Phabou nga*	Whole body.	Smoked fish cooked with *Allium sativum (*Chanam),Allium cepa* (**Tilhou*) as curry; orally taken twice daily in the morning and evening for two days.	Lactation.
10	*Eutropiich-thys vacha*	Schilbeidae	*Ngahei*	Flesh.	Used as curry two times in a week for one month.	To improve brain and cure Tuberculosis.
11	*Heteropneustes fossilis*	Heteropneustidae	*Ngacheek*	Whole body	Cooked/boiled with *Phylogacanthus thyrsiflorus (*Nongmangkha)* used as tonic curry.	Used as blood purifier; used in treating Anaemia.
12	*Hilsa ilisha*	Clupeidae	*Illisha*	Oil extracted from body	Used as ointment for hands, heels and legs.	Arthritis, cracked heels. Night blindness and scurvy.
13	*Labeo pangusia*	Cyprinidae	*Ngatin*	Flesh	The cooked fish is given as antidote for food poisoning.	Food poisoning, brain improvement.
14	*Labeo rohita*	Cyprinidae	*Rou*	Eye, Oil.	The boiled decoction of eye and fish oil is given to the patient two/three times in a week.	Night blindness.
15	*Mastacembe-lus armatus*	Mastacem-belidae	*Ngaril*	Flesh, Liver, Bile	Liver is boiled and the bile is crushed with water. Soup is taken for two times a day for one week.	Kwashiorkor, Night blindness, Chronic fever.
16	*Monopterus albus*	Synbranchidae	*Ngaprum*	Flesh	Flesh cooked in fresh milk. The curry is taken once a week for six months.	Treatment of undernourished and anaemic child and adults.
17	*Mystus bleekeri*	Bagridae	*Ngashep*	Whole body	Boiled with *Portulaca oleracea (*Leipak Kundo)*, curry taken two times daily for three days.	Dysentery
18	*Osteobrama belangeri*	Cyprinidae	*Pengba*	Oil	Oil is extracted from pectoral muscle and mixed with root juice of *Musa paradisiaca* (**Laphu*)*;* taken as tonic once daily for a month.	Aphrodisiac and loosening of vaginal muscles.
19	*Osteobrama cotio cotio*	Cyprinidae	*Ngaseksa*	Whole body.	Sundried whole body crushed into a powder and used as dried powder.	Treatment of Ringworm.
20	*Puntius sophore*	Cyprinidae	*Phabounga*	Whole body.	Fermented fish is crushed into a paste with cooked rice; the paste is taken before meal for six/seven days.	Plague, Ulcer (gastric).
21	*Wallago attu*	Siluridae	*Shareng*	Barbels	Roasted barbell is mixed with powdered, tender leaves of *Psidium guajava*(**Pungdol*)*;*	Treatment of Diarrhoea; to improve strength.

(Manipuri name of plants used)*

DISCUSSION

Findings of the present work reveal the benefits of ethno-medicinal utilization of 21 fish species belonging to 13 families. These fishes are used in preparation of different ethno-zoological remedies for 19 ailments and common diseases afflicting the general public (Dhanapati. L. 1990; 1995). These fish species are used by ethnic people of Bishnupur District, Manipur in treating certain diseases in the simple, ethnic ways. Four fishes, namely, *Aorichthys seenghala*, *Hilsa ilisha*, *Labeo rohita* and *Mastacembelus armatus* are commonly used in treating night blindness, though the modes of preparation and administering the concoctions are different. Mahawar *et. al*. (2007) reported the use of powdered *Labeo rohita* cervical vertebrae for treating kidney stone blockage problem by Saharia tribes of Rajasthan. *Catla catla* and *Channa orientalis* are used in treating boils. The catfishes, viz. *Clarias batrachus* and *Heteropneustes fossilis* are used in treating anemia. Diarrhoea can be controlled easily by feeding the patients with roasted barbels of *Wallago attu* mixed with powdered, tender leaves of *Psidium guajava,* while dysentery can be easily controlled by feeding the patients with *Mystus bleekeri* boiled with *Portulaca oleracea* (*Leipak kundo)*. *Anguilla bengalensis,* known as *Ngaril leina* in Manipur is useful in treating piles and meningitis.

Channa orientalis (Meetei ngamu) is the most important fish used by all ethnic communities for medicinal and religious purposes. Their populations have become drastically depleted in their natural habitats due to indiscriminate and uncontrolled fishing and habitat destruction especially by using chemicals. Detailed investigations and proper traditional management strategy is urgently required to keep each species intact before the population of species dwindle.

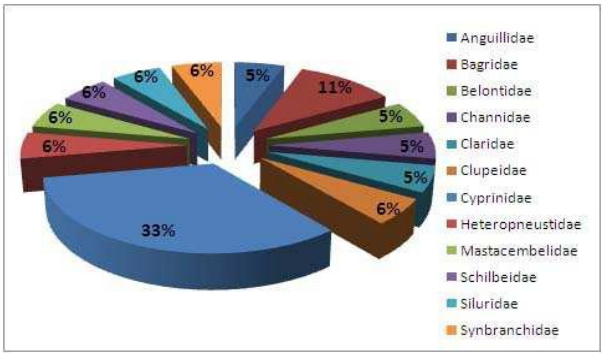

Fig. 2: Familywise Percentage distribution of ethnomedicinal use of certain fish species of Bishnupur District, Manipur

CONCLUSION

From the above findings, it can be concluded that the people belonging to the different ethnic communities of Manipur have a rich Ethnozoological knowledge and resources. A large number of animals had been found providing a number of substances with medicinal properties which the people use to treat a wide range of ailments (Jamir N. S. & P. Lal, 2000; Jamir, N. S.; Lanusunep & Narola Pongener, 2012; Rajesh Singh Yumnam *et. al* 2012; Khongsai *et. al.* 2014). The Present study reveals the ethnozoological uses of different kinds of fishes generally practiced by the ethnic community as reported earlier by Prakash *et. al* (2014). The findings throw light on the fact that fishes can be used in treating a number of human ailments. Most importantly, changes in eco-system, deforestation, jhum farming, constraints of economy, Christianity, ignorance of people, lack of awareness of conservation and preservation, unsystematic collection and destruction of identified plants and its natural habitat, besides other factors, have posed a serious threat to the existing ethno-medicinal plants and animals in North-East India (Yirga, G. *et al* (2011). If fish can be used as a good source of simple forms of medicine traditionally used earlier, the common people may have an easy way to avoid the high cost of modern medical treatments, thereby improving their economic condition. This approach may bring another means for encouraging the local fish populations from uncontrolled fishing.

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