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Knowledge Distribution and Ethnobiology in Majhi Community of Makawanpur, Nepal

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Abstract

A comprehensive survey aimed at documenting traditional medicinal practices used by Majhi ethnic community was carried out between September and December 2022 in 3 different wards of Bakaiya rural municipality. This study focuses on the traditional medicinal practices using plants and animals. Semi-structured interviews and focus group discussion were carried out during the visit to a total of 25 informants. A total of 32 plants and 15 animals were recorded for different therapeutic uses. The 32 plants species with 26 families, includingLamiaceaehaving the highest number (3) and Gingeberaceae, Rutaceae, Embretaceae and Fabaceae having (2) representative speciesand their use value were recorded. The 15 animal species with 15 families, such as Phasanidae, Cervidae, Columbidae with single representative speciesand their use value were recorded. It is projected that the documentation of ethnobiological knowledge will further promote the conservation, use value and bioprospecting of the biological species.

Keywords: ethnobiology, health, therapeutic, remedy, leaves

1. Introduction

The use of plants and animals has been directly attached to humans in different livelihood purposes including various cultures (Singh, 2016; Alves & Rosa, 2005). These plants and animals are used by various ethnic people with their traditional knowledge in their livelihood purposes directly or indirectly. The vast traditional knowledge by the ethnic people is found close to the nature with knowledge of use of plants and animals (Maiti & Maiti, 2011). Stepp (2005) defined ethnobiology as the scientific and humanistic study of relationship with biota to the present and previous human communities. Ethnobiology is an important discipline of science which aims to document the valuable information regarding the use of plants and animals. This discipline has now been considered not only a means of livelihood enhancement of rural people (Balick, 1984)but also a means of biodiversity conservation (Huntington, 2011). These days there is an increasing trend of conducting ethnobiological studies by both anthropologists and other researchers in the field of biology like zoology, botany and ecology reflecting its multidisciplinary aspects (Albuquerque, Silva, Campos, Sousa, Silva, & Alves, 2013).

The present status of ethnic diversity in Nepal is the outcome of governmental legislative approach, economic policies and varied political influence (Levine, 1987). There

are 126 caste/ethnic groups where largest caste/ethnic groups include Chhetri with 16.6% (4,398,053) of the entire population followed by Brahman-Hill (12.2% ; 3,226,903), Magar (7.1% ; 1,887,733), Tharu (6.6% ; 1,737,470), Tamang (5.8% ; 1,539,830), Newar (5% ; 1,321,933), Kami (4.8% ; 1,258,554), Musalman (4.4% ; 1,164,255), Yadav (4% ; 1,054,458) and Rai (2.3% ; 620,004). (Central Bureau of Statistics, 2012). Due to the lack of proper documentation, the valuable traditional knowledge accumulated within the ethnic communities residing in rural areas are diminishing day by day (Adhikari, Thapa, Kunwar, Devkota, & Poudel, 2019).

1.1 Research Gap

Majhi, the privileged ethnic community, are strong with medium height having their own language (Shah & Singh, 2014) are also residing in Bakaiya rural municipality in Makawanpur district. This community mainly depends on the natural resources for their livelihood. They incorporate a vast knowledge on medicine, food, fodder, folk knowledge, timber and other cultural values which are in a verge of extinction due to poor documentation. Ethnobiological studies help to select and perform scientific study on potentiality in preparing medicine as these plants and animals are being used from prehistoric time (Borokini, Ighere, Clement, Ajiboye, & Alowonle, 2013). To preserve the valuable traditional knowledge, documentation of information is necessary which is useful for other societies in identifying potentialities that can generate income for livelihood. So, there is an urgent need of documenting the information regarding the use of plants and animals before the information are vanished. This paper attempts to describe the livelihood patterns and strategies of Majhi community incorporated by them in Makawanpur district.

2. Materials and Methods

2.1 Study Area

The study area is located in Bakaiya rural municipality of Makawanpur district about 20 km east from headquarter Hetauda. Makawanpur district lies in Bagmati province ranging an altitude from 166 to 2586 meter above sea level. Bakaiyais surrounded by Bagmati rural municipality in East, Hetauda sub metropolitan city and Makawanpurgadi rural municipality in West, Lalitpur district and Bhimphedi rural municipality in North and Rauthat and Bara district in South. It is located in between the latitude 27˚33' N and 85˚20' E longitude. Among total land of Makawanpur district (2426 km^2) Bakaiya rural municipality occupies 393.75 Km^2 (16.23%). The Majhi (3.80%) community are intermixed with different other ethnic/caste groups like Tamang (74.73%), Chhetri (6.25%), Brahmin (4.33%), Rai (3.61%), Kami (2.43%), Magar(1.65%), others (3.19%)(Bakaiya Rural Municipality, 2076). Despite of this, the Majhi ethnic community are close with natural resources having high ethnobiological knowledge(Shah & Singh, 2014)residing in three wards of Bakaiya viz; ward 4, 5 and 6 in close proximity of Simat river and Bakaiya river so, the study was focused on

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this rural municipality.

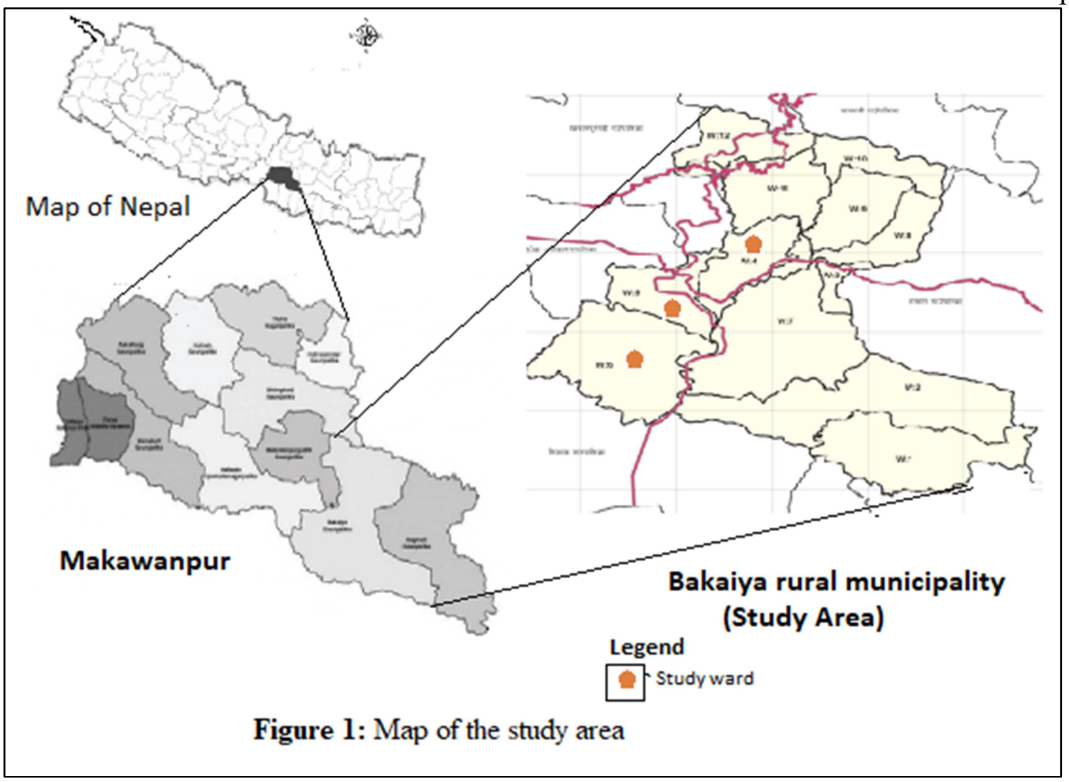

Figure 1: Map of the study area

2.2 Methodology

This study has been done entirely based on primary and secondary data collection. The primary data were collected from the field survey through direct observation, participation and interviews twice in September and December 2022. This study aimed to document local knowledge on useful plant and animal species used in the study area. Semi-structured interviews regarding the use value of plants and animals, key informant like traditional healers and elder persons were interviewed, focus group discussion were carried out. Moreover, small groups of students, teachers, housewife, and farmers were also interviewed with semi-structured questions. Group discussion was conducted involving about 4-5 respondents. The interviews were focused on plant and animal taxa, their localities, major use categories, parts used, mode of collection and strategy for livelihood.

The collected samples in the field were identified using standard literatures, experts from Agriculture and Forestry University, Institute of forestry (T.U.), Central department of Zoology and Botany (T.U.), National History Museum, Swayambu and National Herbarium and Plant Laboratories, Godavari. The secondary data were collected from the relevant textbooks, research paper, journals and publications which helped in comparison and justification of primary data.

3. Result and Discussion

3.1 Demography: Knowledge Distribution Pattern

A total of 25 key informants (16 male and 9 female between ages of 20-70 years) were interviewed in the study area on the basis of their gender, age, and profession (Table 1). Firstly informants were categorized on the basis of gender where 16 male and 9 female were interviewed. The easier availability of male, division of labor between male and female, ban of interaction of female with unknown people in the community may be the reason for this difference in gender informants where the traditional healers are male and are highly

associated with herbal preparations. The similar reasons have been stated by various studies conducted by (Amjad, Zahoor, Bussmann, Altaf, Gardazi, & Abbasi, 2020; Qaseem, Qureshi, Amjad, Waseem, & Sajid, 2019).

Secondly the informants were classified on the basis of age into three groups, i.e., 20-35; 36-50; 51 and above. Informants with age group 51 and above had higher information, then age group of 36-50 and the least was with 20-35 age groups (Table 1). The highest knowledge in the age group of 51 and above was due to the interest in preparation of herbal remedies for curing different diseases, their dependency upon natural resources for their livelihood. In the age group below 50, the information regarding traditional knowledge was decreasing slowly. This might be due to the less interest of youngster towards the natural resources and also due to the modern facilities of medicines and food. The similar finding was also reported by (Qaseem, Qureshi, Amjad, Waseem, & Sajid, 2019).

Another criterion was based on profession and categorized as teacher, farmer, housewife, traditional healers and students. The highest knowledge was found with the traditional healers, then farmer, followed by housewife and the least was found with students and teachers. This might be due to the transfer of knowledge from their forefathers due to their beliefs in traditional healing system and they don't want the modern allopathic treatment system. Tugume, et al.(2010) has also supported the similar finding.

Table 1 *Informant information including gender, age group and profession*

Variables	Category	Number
Gender	Male	16
	Female	9
	Total	25
Age group	20-35	4
	36-50	8
	51 and above	13
	Total	25
Professions	Teacher	2
	Farmer	7
	Housewife	5
	Traditional healer	9
	Student	2
	Total	25

3.2 Useful Plant and Animal Species: Ethnobiological study

A total of 32 plant species belonging to 26 families and 15 animal species belonging to 15 families were reported in the study site. Altogether 8 different parts like root, leaves, stem, bark, rhizome, fruit, seeds, flower and whole plants were used in different therapeutic purposes (Table 2b). Also, same plants were used to cure different therapeutic uses. Among the collected plant species leaves (12) were the most used plant parts, then fruit(7), followed by stem(5) (Fig 2a). Previous studies done by (Shah & Singh, 2014; Qaseem, Qureshi, Amjad, Waseem, & Sajid, 2019) also reported similar use pattern of the plant parts. Leaves, roots and fruits were found to be the most used parts might be due to their easy accessibility, collection and presence of high secondary metabolites along with their .high health

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benefits(Kunwar, Mahat, Acharya, & Bussmann, 2013; Neves, Matos, Moutinho, Queiroz, & Gomes, 2009).

Of the 15 different animal species of 15 different families, 6 were Mammals, 5 Aves, 1 Insecta, 1 Gastropoda, 1 Fishand 1 Amphibia (Table 2a). Among the collected animal species, they were mainly use meat (5), then exoskeleton (3) followed by egg (2), fat (2) (Fig 2b). Similar findings were also stated by (Shah & Singh, 2014) on the use parts and products of the animals. Meat was found to have the highest use due to the easy availability and its medicinal value like to cure leprosy, asthma.

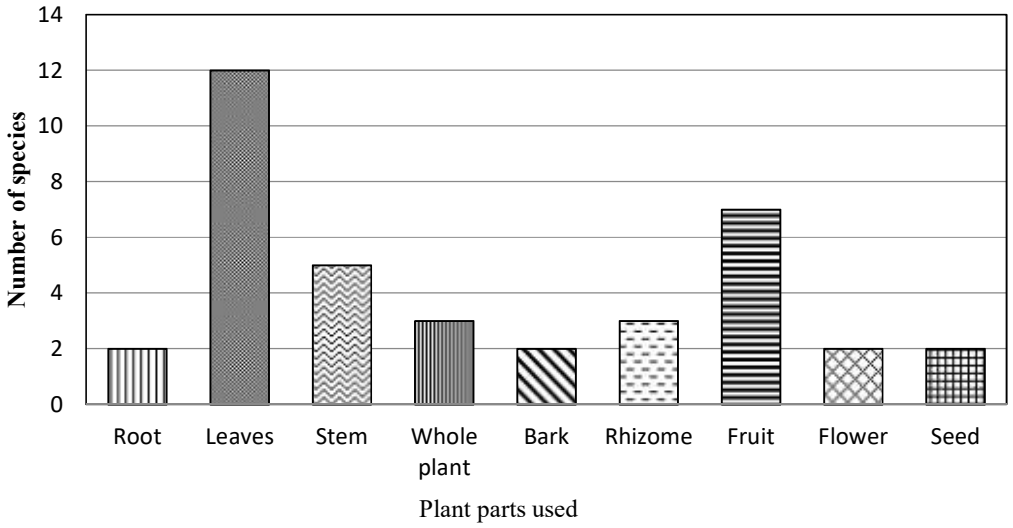

Fig 2a: *Plant parts used reported from the study area*

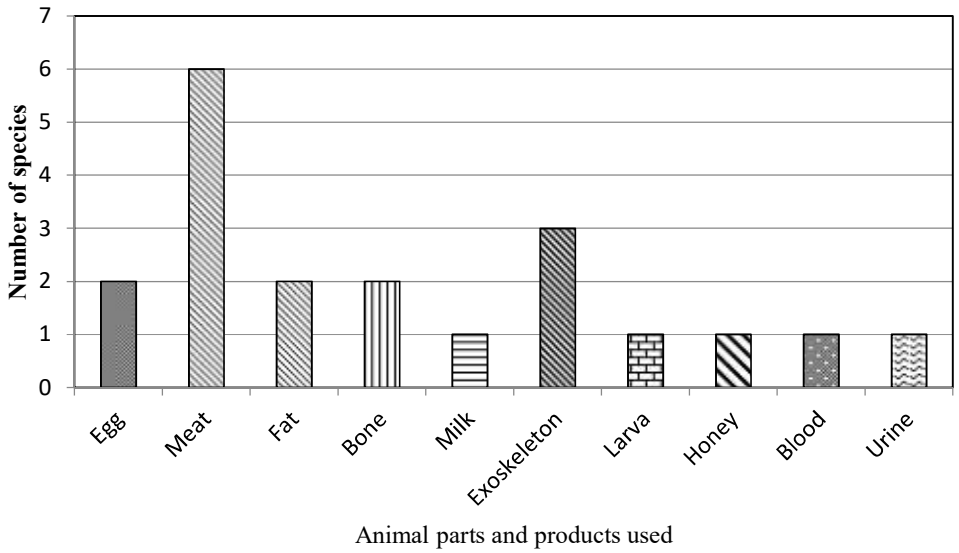

Fig 2b: *Animal parts and products used in the study area*

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Table 2(a) *Animal parts used and other use practice by Majhi community*

S.N	Scientific Name	Local Name	Family	Parts used	Use practice
1.	*Apiscerana*	Mauri	Apidae	Honey, Wax, Larva	Cough, Cracked skin, Weakness
2.	*Vanellusindicus*	Huttityau	Charadriidae	Egg	Typhoid
3.	*Gallus gallus*	Kukhura	Phasanidae	Egg, Blood, Meat	Eczema, Menstural disorder, Cold
4.	*Columba livia*	Parewa	Columbidae	Meat	Menstural disorder, Cold
5.	*GypusSpp*	Giddha	Accipitridae	Bone	Fracture
6.	*EquusSpp*	Ghoda	Equidae	Urine, Sweat, Hoof	Alcohol addiction, Typhoid
7.	*Susscrofa*	Sungur	Suidae	Fat	Cracked skin
8.	*Axis axis*	Mirga/Harin	Cervidae	Antlers	Fracture, Bone strengthening, Blurred vision
9.	*Canisaurens*	Syal	Canidae	Fat, Meat	Rheumatism
10.	*BellamyaSpp*	Ghogi	Viviparidae	Meat	Malaria, Weakness
11.	*ChannaSpp*	Bhoti	Channidae	Fat, Intestine	Cracked skin, Burns
12.	*Homo sapiens*	Manche	Homonidae	Milk	Eye infection
13.	*Passer domesticus*	Bhagera	Passeridae	Meat	Sexual power
14.	*Ranatigrina*	Bhyaguta	Dicroglossidae	Skinless Meat	Leprosy, Asthma
15.	*Hystrixbrachyura*	Dumsi	Hystricidae	Stomach, Spine	Asthma, Dizziness, Vomiting, Tetanus

Table 2(b) *Plant parts used and the use practice by Majhi community*

S.N	Scientific Name	Local Name	Family	Parts used	Use practice
1.	*Acoruscalamus*	Bojho	Acoraceae	Rhizome	Tonsillitis
2.	*Ocimum sanctum*	Tulasi	Lamiaceae	Leaves	Cold, Cough, Skin infection
3.	*Phyllanthusemblica*	Amala	Phyllanthaceae	Fruit	Dysentery, Burning urination, Tonic
4.	*Menthaspicata*	Pudina	Lamiaceae	Whole plant	Jaundice, Indigestion
5.	*Vitexnegundo*	Simali	Verbenaceae	Leaves	Swollen body parts, Skin disease
6.	*Myricaeesculenta*	Kafal	Myricaceae	Tree Bark, Fruit Juice	Cholera, Piles
7.	*Psidiumguajava*	Amba	Myrtaceae	Tree Bark Juice	Dysentery
8.	*Santalum album*	Shree Khanda	Santalaceae	Tree Stem Paste	Uterus prolapsed
9.	*Zingiberofficinale*	Aduwa	Zingiberaceae	Rhizome	Indigestion, Body pain
10.	*Urticadioica*	Sisnu	Urticaceae	Leaves, Young shoot	Arthritis, Common cold, High blood pressure
11.	*Curcuma longa*	Besar	Zingiberaceae	Rhizome	Cough
12.	*Centellaasiatica*	Ghodtapre	Apiaceae	Whole plant	Swollen hand/ leg, Common cold, Fever
13.	*Citrus limon*	Kagati	Rutaceae	Fruit	Common cold,

					Indigestion
14.	*Bombaxceiba*	Simal	Bombacaceae	Root, Flower	Measles, Micturition disorder
15.	*Artemisia vulgaris*	Titepati	Asteraceae	Leaves, Root	Bleeding, Skin disease
16.	*Asparagus racemosus*	Kurilo	Asparagaceae	Root	Lactation, Paralysis,Tonic
17.	*Adhatodavasica*	Asuro	Acanthaceae	Leaves	Cough
18.	*Allium sativum*	Lasun	Amaryllidaceae	Stem	Tonsilitis, Pain relief
19.	*Cannabis sativa*	Ganja	Cannabaceae	Leaves	Cold, Pain relief
20.	*Terminaliachebula*	Harro	Combretaceae	Fruit	Gastritis, Cough
21.	*Terminaliabellirica*	Barro	Combretaceae	Fruit	Gastritis
22.	*Tinosporasinensis*	Gurjo	Menispermaceae	Stem	Jaundice, Earache
23.	*Cynodondactylon*	Dubo	Poaceae	Whole plants	Fever, Bleeding
24.	*Aeglemarmelos*	Bel	Rutaceae	Fruit, Leaves	Diabetes, Bleeding nose
25.	*Withaniasomnifera*	Ashwaganda	Solanaceae	Leaves	Weakness, Abdominal disorder
26.	*Aloe vera*	Ghiukumari	Asphodelaceae	Leaves	Burns
27.	*Gaultheria fragrantissima*	Dhasingare	Ericaceae	Fruit	Rheumatism and against hook worm
28.	*Pogostemonbengalensis*	Rudilo	Lamiaceae	Shoot/root	Cough sinusitis, Diarrhoeaand vomiting
29.	*Cassia fistula*	Raj briksha	Fabaceae	Seed	Snake bite, Rheumatism, Diarrhoea
30.	*Mimosa pudica*	Lajjawatijhar	Fabaceae	shoot	Bite of the scorpion sting, Rheumatism
31.	*Azadirachataindica*	Neem	Meliaceae	Leaves, Seed	Skin disease, Against worm
32.	*Nyctanthes arbor-tristis*	Paarijaat	Oleaceae	Flower, leaves	Blisters and wound

4. Conclusion

From the present study it can be concluded that the Majhi community, being mostly uneducated, have a vast knowledge in use practices of plants and animals in different therapeutic systems. In fact, most of the ethnobiological knowledge was prevailed within the elderly people, male and traditional healers. So, the youngster should be activated in knowledge transfer to preserve the valuable information before the knowledge disappears with the knowledgeable elderly people. The knowledge which are documented by the ethnobiologist helps to conserve the biodiversity, culture and provides a lead to the modern medicine system. Therefore, it is crucial for proper documentation and recording the diverse utilization of plants and animals.

5. Acknowledgement

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