

Ethnozoological survey of Non conventional food items and their therapeutic use by the traditional healers of Dhemaji district of Assam, North-East India

Research Article

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Abstract

Assam one of the North Eastern states of India is gifted with diverse natural resources and inhabited by varied ethnic communities. Dhemaji district of Assam is also not exceptional in this regard. A survey was conducted on zootherapeutics among the traditional healers of Dhemaji district through personal interview from 2016 January to 2017 January in fifteen non tribal inhabited villages among 75 respondents of the age group 50-70years. It was documented that the ethnic people of Dhemaji used a total of 26 species of non conventional food items for their therapeutic value against various ailments including itching, burning, asthma, paralysis, weakness etc. These species include varieties of vertebrate and invertebrate species such as arthropods, molluscs, amphibians, aves, reptiles, pisces and mammals depending on their seasonal availability. The highest no of animal species used for the traditional therapeutics is mammals (29%) followed by pisces (19%), arthropoda and reptiles(15%), aves (13%) and the least are amphibia and mollusca (each comprises only 4% species). The study reveals that the ethnic people of Dhemaji are rich in traditional therapeutics and proper documentation and scientific analysis may lead to new drug discovery and conservation of these valuable faunal species.

Keywords: Nonconventional food, Food value, Therapeutic value, Faunal diversity, Traditional knowledge.

Introduction

Food is the primary source of nutrition and as well as one of the basic needs for all the living being. Non-conventional food resources are the unusual food items that are usually unavailable in the markets. Assam, one of the north eastern states of India is gifted with diverse natural resources and inhabited by varied ethnic communities. Dhemaji district of Assam is also not exceptional in this regard and the ethnic people of Dhemaji use varieties of traditional medicines made from non conventional sources. Zootherapy is the practice of using the animal species and animal derived products in the treatment of different ailments. It includes animal or animal derived products from all taxonomic groups (1). From time immemorial the ethnic people of Dhemaji depends on the zootherapy when the health care facilities were insufficient. These zootherapeutic practices are also found in both the developed and developing countries (2). According to World Health Organization the percentage of population using traditional therapeutics is more in developing countries than the developed countries. About 80% of African populations use traditional medicines for their good health (3). Among the 252 essential chemicals selected by WHO, 8.7 % are

derived from animals (4). In many parts of the world the wild and domestic animals and their by-products are also used in various ailments (5, 6). India is also known for its richness in biodiversity as well as for the Ayurvedic medicines. According to Unnikrishnan (7)15-20% Ayurvedic medicines in India are animal derived. In Assam Dutta *et al.* (8) documented the zootherapy by tribal people of Assam. The people of the adjoining areas of Pobitora Wildlife Sanctuary of Assam also practices zootherapy (9). Lots of knowledge are still practiced orally from generation to generation and for the well being of the society, the proper documentation is quite necessary. Therefore, the present study has been conducted at Dhemaji district to compile the richness of traditional zootherapies among the ethnic people of that area and to create awareness among the people for sustainable utilization of these valuable resources.

Materials and methods

Collection of data

For the collection of primary data extensive field surveys have been conducted from January 2016-january 2017 in 15 non tribal inhabited villages i.e. Gohain gaon, Bakal gaon, Amguri, Kuwafola, Bor ajuha, Samarajan, Deogharia, Komargaon, Napaam, Kapahtali, Khubalia, Gowal Chapori, Luguti, Hubahi and Nahoroni of Dhemaji district of Assam. The surveys were based on interviews. A total of 5 persons aged between 50-70 years of age (4 male and 1 female) from each of the villages were interviewed in order to obtain information regarding the different non-conventional food items, their availability and therapeutic value. Mostly the traditional

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healers of each of the villages were interviewed with prior consent for the collection of primary data. The traditional healers have practiced these therapeutics from time immemorial generation after generation and showed positive results.

Area of study

The Dhemaji District lies between 94°12'18"E and 95°41'32"E longitude and 27°05'27"N and 27°57'16" N latitudes (Fig.1) The district covers an area of 3237sq.Km. and is basically plain area lying at an altitude of 104 m above the MSL with diverse bio-ecology of tropical to temperate. The temperature ranges between 5.90C in winter to 39.90C in summer, relative humidity 73-90%; rainfall 2600-3200 mm; soil type: alluvial and laterite, rich in humus and soil pH ranges between 4.9 to 7.95 heterogeneous physiographic with mountainous border and the plains of Brahmaputra (MSL 104 m) with total population is about (688,077). It is one of the border districts of Assam and Arunachal Pradesh and rich in biodiversity as well as diversity of ethnic groups.

Result and Discussion

The present study shows that the ethnic people of Dhemaji are well experienced in traditional therapeutics. They still practice zootherapy, for the treatment of different ailments. In this study it is documented that a total of 26 nos. of both the vertebrate and invertebrate species are used in therapeutics by the ethnic populace of

Dhemaji district against various ailments including itching, burning, asthma, paralysis, weakness etc. These species include varieties of vertebrate and invertebrate species such as arthropods, molluscs, amphibians, aves, reptiles, pisces and mammals depending on their seasonal availability. The table (Table.1) summarizes the phylum of the species, common names, scientific names, seasonal availability, parts used and mode of use of the species for therapeutic purpose. Among the documented fauna the highest no of animals used for the traditional therapeutics is mammals (29%) followed by pisces (19%), arthropoda and reptiles (15%), aves (13%) and the least are amphibia and mollusca (each comprises only 4% species) (Fig.3). For the therapeutic use different parts are applied like the flesh, pupae, cocoon, nest, whole body, skin, fecal matter, milk, leg, tongue, stomach, skull and bone for various external and internal diseases (Fig.4).The diseases mostly treated by zootherapy are skin problem, nasal bleeding, night blindness, dysentery, low blood pressure, arthritis, rabies, pneumonia, tuberculosis, tonsil, asthma menstrual pain etc.(Fig.5). Most of the species are available throughout the year and applied in properly dried and cooked form. However, the ethnic populace of Dhemaji practices these zootherapy but they should also be aware about the conservation of biodiversity for the conservation of these valuable bioresources. This practice may be the cause of extinction of these animal species and for that perspective sustainable use and awareness among the people is the need of the hour.

Table 1: Animal species used in therapeutics

Sl. No	Phylum	Common name	Scientific name	Seasonal availability	Part used	Prescription /Mode of consumption
1	Mollusca	Apple snail	<i>Pila globosa</i>	Around the year	Flesh	Boiled fleshy part is taken as food for good vision
2	Arthropoda	Eri silkworm	<i>Samia ricini</i>	Around the year	Pupae and cocoon	Pupae are crushed and applied on the white layer deposited on the tongue of infants. Cocoons of escaper silkworm are worn out to infants to protect them from evil eye sight.
3	Arthropoda	Wasps	<i>Sceliphron madraspatanum (Fabricius)</i>	Around the year	Nest	Nest is burnt and soaked in water and the water extract is taken in stomach pain.
4	Arthropoda	Honey bee	<i>Apis indica</i> <i>Apis dorsata</i> <i>Apis florea</i>	Around the year	Honey	Raw honey is used in common cold, cough and applied on the bee biting areas for relief from pain and swelling.
5	Arthropoda	Red ant	<i>Oecophylla smaragdina</i>	Around the year	Whole body of Adult	In nasal bleeding the smell of the adult ant is inhaled regularly
6	Amphibia	Indian Bull Frog	<i>Hoplobatrachus tigerinus</i>	April-October	Meat of Thigh portion	Thigh portion is fried or boiled and consumed. Prescribed in asthma, itching on the skin, dysentery and cholera in pregnant women.
7	Aves	Pigeon	<i>Columba livia</i>	Around the year	Meat and fecal matter	Meat is cooked and consumed for good memory in children and to treat low blood pressure. Fecal matter is applied as a remedy to treat boils on the skin.
8	Aves	Spotted dove	<i>Spilopelia chinensis</i>	Around the year	Meat	Meat is taken for better production of milk in lactating women.

9	Aves	Duck	<i>Anas platyrhynchos</i>	Around the year	Fat and tongue	Fat is extracted from boiled meat and applied on burned portion. Tongue of female duck is burnt and fed to infants for clear speech.
10	Mammal	Large sized bat	<i>Pteropus giganteus</i>	Around the year	Meat	Meat is taken to cure the night blindness.
11	Mammal	Small sized bat	<i>Pipistrellus tenuis</i> and <i>Pipistrellus Coromandra</i>	Around the year	Meat	Meat is taken to treat asthma
12	Mammal	Mongoose	<i>Herpestes edwardsii</i> (Saint-Hilaire, 1818)(v)	Around the year	Meat	Meat is taken as a preventive measure of body pain.
13	Mammal	Fox	<i>Vulpes bengalensis</i>	Around the year	Meat	Meat is used in the treatment of high blood pressure and paralysis.
14	Mammal	Porcupine	<i>Hystrix indica</i> ,	Around the year	Stomach	Stomach is sun dried or smoke dried and fed with some plants extract. Dried stomach is used to treat tonsil, pneumonia, menstrual pain and delivery pain
15	Mammal	Goat	<i>Capra hircus</i>	Around the year	Leg, tongue and milk	Legs are cooked and taken as a remedy of tuberculosis. Tongue is burned properly and feed to infants with stammering problem. Milk of black goat is taken to cure general weakness.
16	Mammal	Cow	<i>Bos indicus</i>	Around the year	Ghee, milk, and cowdung	Old preserved ghee is used to massage in Arthritis. Milk of cow having same colored calf is used in rabies. Cowdung is used in shuddhikaran(Purification).
17	Mammal	Human	<i>Homo sapiens</i>	Around the year	Saliva	Early morning saliva applied on eye styes, any external skin rashes and itching.
18	Reptile	Pangolin	Manis sp.	Around the year	Scale	Dried scale is applied on itching, rashes on the skin.
19	Reptile	Snake	<i>Naja naja</i>	Summer season	Fat	Fat is used to massage in Arthritis.
20	Reptile	Turtle	<i>Batagur dhongoka</i>	Around the year	Shell	Dried shell is burned and crushed properly and applied on burned areas.
21	Reptile	Bengal Monitor lizard	<i>Varanus bengalensis</i>	Around the year	Skin	Dried skin properly burnt and crushed and applied on severe burns, itching and rashes on skin.
22	Pisces	Singi mach	<i>Heteropneustes fossilis</i>	Around the year	Meat	Meat is taken to minimize general weakness.
23	Pisces	Magur mach	<i>Clarias batrachus</i>	Around the year	Meat	Meat is taken to minimize general weakness.
24	Pisces	Spotted snake head fish	<i>Channa punctatus</i>	Around the year	Meat	Roasted meat mixed with some plant sap and taken in Chronic dysentery.
25	Pisces	Borali Mach	<i>Wallago attu</i>	Around the year	Skull bone of large sized fish	Skull bone is worn to infants to protect them from evil eye sight.
26	Pisces	Kuchia	<i>Amphipnousuchia</i>	Around the year	Blood and meat	Raw blood is taken to treat anemia and weakness. Meat is cooked properly and taken for the anemia and weakness

Figure 1: Geographical map of A. India, B. Assam, C. Dhemaji district

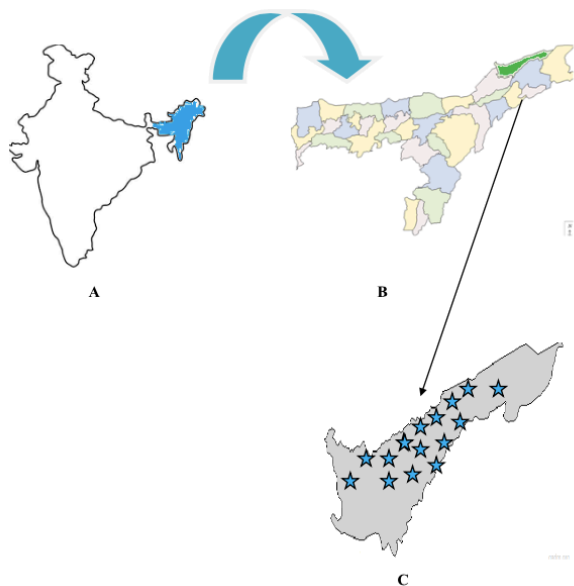
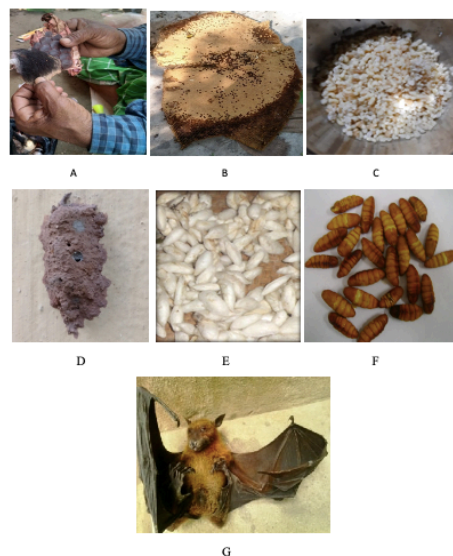
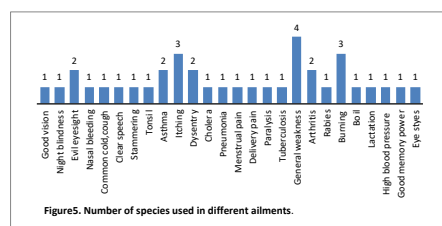
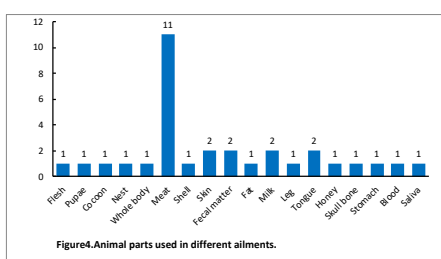
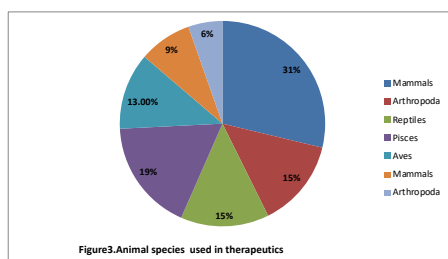


Figure 2: A few photographs of different species used in therapeutics



A. Scale of Pangolin, B Honeycomb, C. Red ant, D Nest of wasps, E Eri silkworm cocoon, F. Eri silkworm pupae. G. Bat species.



Conclusion

The present study provides the idea about the therapeutic use of different animal species among the ethnic people of Dhemaji district. Further study also required in relation to the chemical analysis of these samples which may lead to the discovery of new drugs for the wellbeing of the mankind. Moreover further study may also find some new species used in zootherapy by the ethnic people of that place which will be also helpful for creating awareness and to conserve the species before extinction.

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