

# Traditional Zootherapeutic uses in the Treatment of Asthma by the Ethnic Groups of Assam, India

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**Abstract:- Asthma, a complex disease caused by inflammation in the airways due to allergens, drugs, chemicals, exercise, infection etc is one of the most common diseases suffered by people. From the ancient time, people all around the world are using different plants and animal products to cure several diseases including Asthma. In Assam also, different tribes and ethnic communities were found to be using folk medicine to cure Asthma. This review summarized the use of animals and their products as remedy to prevent and cure Asthma by the different communities of Assam. A total 18 animal species were recorded in the published works available that are used in the treatment which includes 8 species of insects, 5 fishes, 1 mollusc, 2 amphibians and 6 species of mammals.**

**Keywords:- Asthma, Zootherapy, Ethnozoology, Animals, Medicine.**

## I. INTRODUCTION

Asthma is one of the most common diseases suffered by people of all ages. It is a non-curable but preventable disease which continues to place a heavy burden on the health-care system. According to WHO, Asthma affected an estimated 262 million people in 2019 (1) and caused 455 000 deaths. Asthma is a complex disease of varied etiology triggered by a number of factors such as allergens, drugs, chemicals, exercise, cold dry air, infections and emotions (Vijayakumar et al, 2009). It is a disorder caused by inflammation in the airways which lead to the lungs. This inflammation causes airways to tighten and narrow, which blocks air from flowing freely into the lungs, making it hard to breathe. Symptoms include wheezing, breathlessness, chest tightness and cough, particularly at night or after exercise/activity.

Assam, the Gateway of Northeast India is a state full of diversity in cultures, traditions and beliefs. People here had been mainly dependent on natural resources for food, medicine, shelter etc for a long period of time until urbanization hit. Zootherapy had been an inherent part of health care practices among the different tribes and communities of Assam for a long term. Different animals

and its products had been used tremendously as medicine to cure many ailments and diseases by people of Assam. These folk medicines had been passed down generation to generation. But these traditional medicines have been degraded severely as these are not practiced by the new generation to a great degree. Before these knowledge get vanished in near future, they must be documented and archived. Scientific validation to confirm medicinal value is also needed to develop potential drugs based on the traditional knowledge.

Because mostly ethnic communities eat flesh of various animals to control asthma, so there can be a relation between animal flesh and asthma (Mahawar & Jaroli, 2008). Many workers have studied extensively on the ethnobotanical uses of plant species to treat Asthma disease but an ample study is still lacking regarding the use of animals or its products to cure it particularly in Assam. Mahawar and Jaroli (2008) listed 42 animal species with 50 uses for the treatment of different respiratory related problems out of which 32 uses were only for the treatment of Asthma. In Northeast India, 12 animal species were used as medicine for Asthma as mentioned in a review by Das et al (2017). In India, use of 95 plant species was recorded to be used for the treatment of Asthma (Dogra et al, 2015). In Bhubaneswar, Dash et al (2018) recorded 13 plant species to be useful to treat Asthma. Azman et al (2021) reviewed the use of 27 medicinal plants to be utilized to be tested against OVA- Induced Asthma. Roy and Sen (2020) compiled and listed 101 animal species used in the treatment of Malaria by ethnic groups of North-east India. A recent study by Nayak & Singh (2022) described the use of the 2 arthropods, 1 bird and 3 mammal species to treat Asthma in Bhadrak district, Odisha.

The present review is a compendium of the ethnozoological usage of animal species for the treatment of Asthma in Assam taken from relevant published works available online. Data of total 13 published articles (Table 1) were compiled to prepare a list with the details of scientific name, common name, body parts used and the mode of application.

Tribe/ ethnic Group/ region	Studied by	No. of Species reported for the treatment of Asthma
Adjoining areas of Gibbon Wildlife Sanctuary	Borah & Prasad 2017	7
Moridhal Panchayat Of Dhemaji District	Dutta et al, 2016	1
Tai-Ahom People of Upper Brhamaputra Valley	Bhuyan DD, 2016	4
Boro Tribe of Dhemaji District	Gogoi & Bora, 2021	1
Karbi Anglong	Verma et al, 2014	1
Adjoining areas of Pobitora Wildlife Sanctuary	Borah & Prasad, 2016	1
Mising tribe of Dhemaji District	Paul S, 2018	3
Assam	Rahman et al,2014	1
Bodo Tribe of Kokrajhar District	Narzary et al, 2019	1
Semkhor area, Dima Hasao District	Kemprai et al, 2022	2
Dimoria Development Block	Sharma S, 2018	1
Dima Hasao District	Langthasa et al, 2016	4
Dimasa Kacharis of Dima Hasao	Langthasa et al, 2018	1

Table 1: List of published research works on zotherapy application in the treatment of Asthma in Assam, India

## II. SPECIES USED IN ZOOTHERAPY TO TREAT ASTHMA IN ASSAM

It was found that a total number of 22 animal species were recorded in the published works available which have use in the treatment of asthma disease (Table 2). Out of these , 8 species were insects, 5 fishes, 1 molluscs, 2 amphibians and 6 species were mammals. The parts used were mainly whole body, flesh or meat, but use of honey and airbladder was also documented.

Sl. No.	Scientific Name	Common Name	Tribes/Regions	Prescription	Parts used	Reference
	<b>Insects</b>					
1	<i>Periplaneta Americana</i>	Cockroach	Adjoining areas of Gibbon Wildlife Sanctuary	Wings are removed and washed, then boiled with water and prescribed to consume	Whole body	Borah & Prasad 2017
			Moridhal Panchayat Of Dhemaji District	Insect is boiled/ burned & consumed		Dutta et al, 2016
			Tai-Ahom People of Upper Brhamaputra Valley	Extract of the roasted insect with water is consumed	Whole animal	Bhuyan DD, 2016
			Boro Tribe of Dhemaji District	Whole body is fried and consumed	Whole body	Gogoi & Bora, 2021
2	<i>Eupolyphaga sinensis.</i>	Cockroach	Dimoria Development Block			Sharma S, 2018
3	<i>Apis cerana indica.</i>	Honey bee	Semkhor area, Dima Hasao District	One table spoonful of honey is mixed in cup of warm water and oral administered for quick recovery.	Honey	Kemprai et al, 2022
4	<i>Orthosoma brunneum.</i>		Semkhor area, Dima Hasao District	Roasted are orally administered.	Larva	Kemprai et al, 2022
5	<i>Oecophylla smaragdina</i>		Dima Hasao	Orally in raw, boil, fried form for a week. Sometimes boiled eggs are made into juice with the addition of water	Adult (abdomen), eggs	Langthasa et al, 2016

				and given to the patient to drink		
			Dimasa Kacharis of Dima Hasao		Eggs	Langthasa et al, 2018
6	<i>Glenurus gratus</i>		Dima Hasao	Taken in odd numbers and made into paste with addition of water and is allowed to consumed to treat babies from asthma and to treat any kind of poison, Oral or internal applications in paste or in juice form atleast for a week	Larvae	Langthasa et al, 2016
7	<i>Hycleus phaleratus</i>		Dima Hasao	Oral application in raw or liquid form for 3-4 days	Adult whole body, hemolymph	Langthasa et al, 2016
8	<i>Lethocercus indicus</i>		Dima Hasao	Orally in roasted or fried form	Adult whole body	Langthasa et al, 2016
	<b>Fish</b>					
1	<i>Wallago auto</i>	Helicopter catfish	Mising tribe of Dhemaji District	It should be used in diet for relief from asthma trouble	Airbladder	Paul S, 2018
2	<i>Amblypharyngodon mola</i>	Mole/Indian carplet	Adjoining areas of Gibbon Wildlife Sanctuary	Cooked fish is prescribed to eat	Whole fish	Borah & Prasad 2017
			Bodo Tribe of Kokrajhar District	Dried fishes are cooked with some leaves and spices make soup	Whole body in dried condition	Narzary et al, 2019
3	<i>Chaca chaca</i>	Devil fish	Adjoining areas of Gibbon Wildlife Sanctuary	Dry fish is grind and prescribed to drink with water	Meat	Borah & Prasad 2017
4	<i>Monopterus cuchia</i>	Swamp Eel	Assam	Taken in combination with other.		Rahman et al, 2014
5	<i>Clarius batracus</i>	Magur	Tai-Ahom People of Upper Brhamaputra Valley	The animal is cooked and consumed	Whole body	Bhuyan DD, 2016
	<b>Molluscs</b>					
1	<i>Pila globusa</i>	Apple snail	Tai-Ahom People of Upper Brhamaputra Valley	Cooked or roasted meat is taken	Body flesh	Bhuyan DD, 2016
	<b>Amphibians</b>					
1	<i>Polypedates leucomystax</i>	Common tree frog	Adjoining areas of Gibbon Wildlife	Meat is boiled with spices like Clove, Cinnamon, black pepper	Meat	Borah & Prasad 2017

			Sanctuary	and prescribed to eat		
2	<i>Ranna spp.</i>	Frog	Adjoining areas of Gibbon Wildlife Sanctuary	Meat is cooked and prescribed to eat		Borah & Prasad 2017
	<b>Mammals</b>					
1	<i>Eoncyteris spelaea</i>	Bat	Adjoining areas of Pobitora Wildlife Sanctuary.	Boiled meat is prescribed to eat	Meat	Borah & Prasad, 2016
			BoroTribe of Dhemaji District	Raw flesh is eaten.	Flesh	Gogoi & Bora, 2021
2	<i>Rhinolophus sp.</i>	Bat	Mising tribe of Dhemaji District	Flesh Burn and eaten with local wine.	Flesh	Paul s, 2018
3	<i>Capra sibirica</i>	Goat	Mising tribe of Dhemaji District	Urine Drink directly	Urine	Paul s, 2018
			Tai-Ahom People of Upper Brhamaputra Valley	Cooked meat is consumed,	Meat	Bhuyan DD,2016
4	<i>Talpa sp.</i>	Mole	Karbi Anglong	Fried and consumed	Flesh	Verma et al, 2014
5	<i>Herpestes edwardsii</i>	Mongoose	Adjoining areas of Gibbon Wildlife Sanctuary	Meat is boiled and prescribed to eat	Meat	Borah & Prasad 2017
6	<i>Pteropus gigantus</i>	Bat/ Bor Baduli	Adjoining areas of Gibbon Wildlife Sanctuary	Meat is cooked and prescribed to eat	Meat	Borah & Prasad 2017

Table 2: List of species used in the treatment of Asthma by different Tribes /Ethnic Groups / regions of Assam, India

### III. CONCLUSION

Zootherapy is intertwined with sociocultural and religious beliefs that must be understood by those engaged in modern conservation and protection of India's biodiversity (Pushpangadan et al, 2014). At present time, a large number of species of Assam are facing hunting, poaching, habitat loss etc which has posed a serious threat to endangered and rare animal species. The traditional knowledge about folk medicine is degrading at a high rate which needs to be protected while also focusing on the conservation status of the species.

This review on the uses of animals and their products to treat Asthma disease by the tribes and ethnic communities of Assam would help to recognize the traditional knowledge of people of Assam. The knowledge about these ethnozoological uses of the animal species would be helpful to discoveries of novel natural products to cure diseases from the biodiversity conservation point of view.

### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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