

Traditional uses of insects in folk medicine by the Bodo tribe in Baksa District, Bodoland Territorial Region, Assam, India

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ABSTRACT: Bodo tribe use to treat approximately 25 different human ailments with 18 insect species from 15 families and 8 orders that. Among the most commonly mentioned uses were remedies for cough, gastritis, rheumatoid arthritis, stomach ache, fever, and wound healing. Each insect's local name, habitat, parts used, and medicinal applications was given in detail. The Vespidae family (17%) was most prominent, followed by Saturniidae (11%). Orders like Hymenoptera (5 species), Lepidoptera (3 species), and Orthoptera (3 species) were also well-represented. Insects are used in various life stages and as byproducts, with fresh specimens preferred. © 2026 Association for Advancement of Entomology

KEY WORDS: Entomotherapy, medicinal insects, indigenous knowledge, life stages

A medicinal insect is any insect or insect derived product used for therapeutic purposes termed entomotherapy, to prevent or cure various human ailments. These therapeutic practices have a long history across various culture worldwide (Chakravorty *et al.*, 2011). Using of insects for therapeutic purposes, involves utilizing whole insects, their parts, or their secretions to prevent or treat ailments (Devi *et al.*, 2023). Insects derive various bioactive substances, such as cantharidin from blister beetles, which demonstrates their potential as a source of pharmaceuticals for modern medicine (Anal *et al.*, 2025). Baksa district which is home to the Bodo community, has significant traditional knowledge about the medicinal properties of insects, and has potential for more valuable discoveries in the medicinal field. This study focuses on specific insect species and their traditional ethnobiological roles in the Baksa district. Baksa

district is situated in the Bodoland Territorial Region of Assam (26.6935° N; 91.5984° E). Total six regions viz., Barama, Baghmara, Anchali, Panbari, Lesra, Bhogpur were selected for the survey.

The study was carried out from January, 2025 to June, 2025. The initial phase of the survey focused on site selection. This involved a preliminary survey of different administrative blocks and ecological zones within the district to ensure a wide range of habitats are covered. Before commencing the field work, permission was taken from the community leaders and local authorities. This qualitative research component involves direct interaction with local communities, particularly the elderly, traditional healers (local *vaidyas* or *ojhas*), and knowledgeable individuals. Semi-structured interviews were employed to gather information on the traditional uses of insects for medicinal purposes.

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Table 1. Insects used to treat different ailments by the Bodo people in Baksa District, Assam

No.	Scientific name	Order/ Family	Common name in English/ Bodo	Habitat	Body part used	Ailments	approach
1	<i>Cybister japonicas</i>	Coleoptera/ Dytiscidae	Water beetle/ Bora jalotalaipoka	Aquatic	Nymph and adult	Ear problem	Fried and roasted
2	<i>Eumeninae</i>	Hymenoptera/ Vespidae	Potter wasps/ Kanjani	Wood and rock	Adult	Headache	Fried
3	<i>Lethocercus indicus</i>	Hemiptera/ Belostomatidae	Giant water bug/ Gangzema	Freshwater	Nymph and adult	Stomach disease	Fried and roasted
4	<i>Apis indica</i>	Hymenoptera/ Apidae	Honey bee/ Beree	Tress hollows	Larva and pupa	Mouth ulcer, burns, asthma	Fried and raw
5	<i>Dolycoris indicus</i>	Hemiptera/ Pentatomidae	Bamboo bug/ Fiso	Forest, grassland	Adult	Used in paralysis and goiter	Fried and roasted
6	<i>Vespa magnifica</i>	Hymenoptera/ Vespidae	Wasp/ Mri	Low mountains, forested areas	Larva and pupa	Curing stomach disease	Fried and raw
7	<i>Musca nebulo</i>	Diptera/ Muscidae	Housefly/ Thamfhwí	Environment near humans and animals	Adult	cold fever, used to dye hair black, eye, digestive problem	crushed live and applied
8	<i>Oecophylla smaragdina</i>	Hymenoptera/ Formicidae	Red ant/ kujideour	Woodlands, Urban areas	Eggs and young ones	Rheumatism, Asthma, Blood pressure control, Cough, and improve eyesight	Live ones
9	<i>Antheraea assamensis</i>	Lepidoptera/ Saturniidae	Muga silk worm/ Muga-latha	leaves of the Som tree	Larva and pupa	Malaria, Tooth ache	Fried, roasted, curry
10	<i>Acheta domesticus</i>	Orthoptera/ Gryllidae	House cricket/ Usrenga	Humid and dark environment	Adult	Delicacy	Boiled and fried
11	<i>Vespa affinis continentalis</i>	Hymenoptera/ Vespidae	Lesser banded hornet/ —	Trees, shrubs and buldings	Adult	Used to cure whooping cough	Fried and roasted
12	<i>Hieroglyphus banian</i>	Orthoptera/ Acrididae	Grasshopper/ Gijir	Rice growing region	Nymph and adult	Liver disorder	Boiled and roasted
13	<i>Samia ricini</i>	Lepidoptera/ Saturniidae	Eri silk worm/ Indi	Cocoon	Pupa	Back pain	Eaten roasted
14	<i>Gryllotalpa gryllotalpa</i>	Orthoptera/ Gryllotalpidae	Mole cricket/ Sosroma	Damp, well fertilized fields	Adult	Foot inflammation and fertility	Eaten Cooked
15	<i>Rhyothemis phyllis</i>	Odonata/ Libellulidae	Dragon fly/ thamphai	Open ponds or swamp forest	Body part	Curing UTI in young children	Fried and roasted
16	<i>Microtermis</i> sp.	Blattodea/ Termitidae	Termite/ Sulung	Moister habitat	Larva	Ulcer	Fried

17	<i>Bombyx mori</i>	Lepidoptera/ Bombycidae	Nuni silkworm/ —	Silk farm		Stroke	Boiled and fried
18	<i>Periplaneta americana</i>	Blattodea/ Blattidae	Cockroach/ Gumathausi	Humid environments, both indoors	Body part	Asthma, TB	Grinded (Chutney)

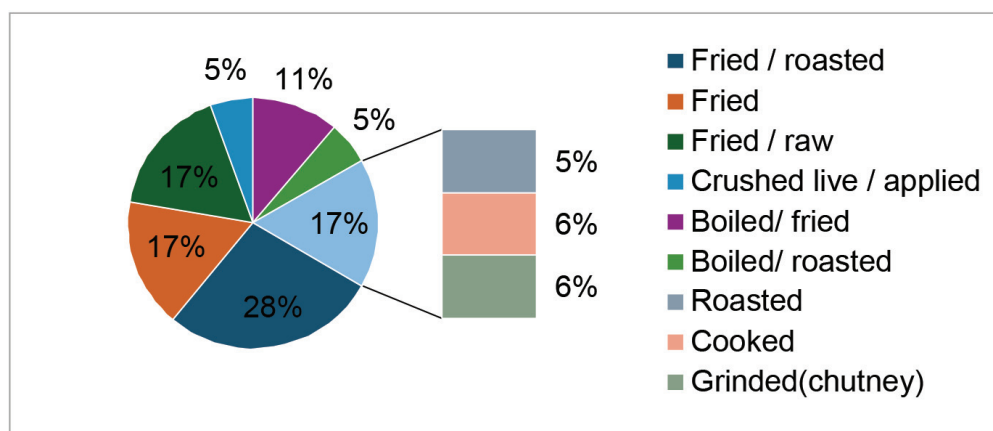


Fig.1 Distribution of species based on consumption method

Questions were designed to elicit details about of the specific insect species used (local names, descriptive characteristics for identification), the ailments they are used to treat, methods of collection, preparation techniques (e.g., raw, powdered, infused, mixed with other ingredients), dosage, administration routes, and perceived efficacy.

The survey recorded 18 different insect species from 15 families and 8 orders that are used by various ethnic groups to treat at least 25 different human ailments. Among these, the most commonly treated ones using insects were cough, gastritis, rheumatoid arthritis, stomach ache, fever, and wound healing. The dominant families reported in the study are the Vespidae (17%) followed by Saturniidae (11%), and six per cent each in Gryllidae, Acrididae, Gryllotalpidae, Bombycidae, Libellulidae, Termitidae and Blattidae; and five per cent each in Dytiscidae, Belostomatidae, Apidae, Pentatomidae, Muscidae and Formicidae. The medicinally used insect species and their local names, habitats, the parts used, and the justifications for their uses are detailed (Table 1). Significant medicinal insect species are utilized as by-products or in their larval,

nymphal, pupal, and adult stages. Ninety percent of the informants have used at least one medicinal insect or its derivative product in their lives, and freshly harvested insects are preferred in traditional medicines. The most common methods of using medicinal insects to treat human illnesses are frying, roasting, boiling, cooking, or making chutney (Fig. 1).

These findings align with the previous ethnoentomological research in northeast India. In a study conducted in the Goalpara district of Assam identified 13 insect species across 12 families and 13 genera, with Hymenoptera and Lepidoptera leading the pack in terms of species count, followed closely by Orthoptera and Hemiptera (Das *et al.*, 2015). Similarly, another study in the Dhemaji district found 14 species from 12 families and 14 genera (Doley and Kalita, 2012). As per Kalita *et al.* (2025) insects have historically been used for various health concerns, including pain relief, inflammation, digestive problems, and even serious diseases like malaria and cholera. Tiwa community uses insects especially red ants use to treat different ailments such as Rheumatism and gout, Asthma, Blood pressure control, Cough, and improve eyesight (Dutta *et al.*, 2025). The potential for bioactive

compounds in insects to possess anti-inflammatory, antimicrobial, and antiviral properties further bolsters their role in traditional medicine (Sinha and Choudhury, 2024). The study found that the Bodo tribe in Baksa District, Assam, use insects not only as food but also for medicine. The use of insects in medical treatment has been widely practiced among the Bodo community since ancient times. However, there is a need for further research and detailed documentation regarding the experiences and applications of these insects.

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