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Practice of entomophagy by the Bodo community residing in rani area of Kamrup district, Assam

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Abstract
The world food production is not being able to keep pace with the growing population, which in turn, is leaving people without complete nutrition. Insects can fill up the space for providing the complete nutrition if it is incorporated in our daily food habits. But it is imperative that the distinction should be clear between edible and inedible insects. This is where the knowledge of the indigenous people plays a very important role. North-east India is home to a large number of traditionally living ethnic communities, who poses a vast knowledge on entomophagy and entomotherapeutic practices. Thus the present study aims to document the practice of entomophagy by one of the earliest ethnic and linguistic community, the Bodos, residing in Rani Area of Kamrup district, Assam. During the study it was found that the people consumed 8 different species of insects belonging to 6 orders, available in daily market, which included aquatic insects such as *Lethocerus indicus* and *Dytiscus marginalis*, terrestrial insects such as termites, mole cricket, weaver ant, and larvae of *Philosamia ricini*, *Antheraea assamensis* and *Bombyx mori*.

Keywords: Bodo community, nutrition, incorporated, imperative, indigenous

1. Introduction
Entomophagy has been prevalent since time immemorial. Although the practice of entomophagy is considered dirty, unhealthy and in some cases 'taboo' by the modern society but we must realize that entomophagy is going to be the alternate source of cheap protein and nutrition for the modern society in near future.

Insects as a source of food and nutrition have been recorded from many parts of the world such as Asia, Australia, Africa and the Middle East (Bodenheimer, 1951) [1]. The list includes ants, termites, water bugs, crickets, cicadas among others. According to Mitsuhashi (2008) [14]. There are at least 1,900 identified species of edible insects worldwide.

Insects represent a traditional food in many parts of the world where they are consumed not as an alternative but as a part of regular diet and India is certainly no exception. The areas where people consume insects as part of their regular diet have developed specific recipes for cooking the insects (Srivastava, 2009) [21]. As researchers in Northeast Thailand have discovered, people consume edible insects simply because they taste good (Durst and Sono, 2010) [7]. An insect possesses high protein and fat content and also provides essential vitamins and minerals, & they are rich in essential amino acids and unsaturated fatty acids (Ramos-Elorduy *et al.* 1997. Oliveira *et al*. 1976. Kodondi *et al*. 1987. Pereira *et al.* 2003. Bukkens, 2005) [18, 15, 12, 16, 2]. According to entomological society of America, by weight, termites, grasshoppers, caterpillars, weevils etc are better sources of protein than cattle, chicken, pork or lamb (Srivastava, 2009) [21]. Chakravorty *et al*. 2013 [5]. Pointed out to the fact that analysis of the data available on the nutritional value of edible insects showed that 50% of insects had a calorific value higher than soybeans, 70% higher than fish, lentils and beans and 87% higher than corn. All these data point out to the very obvious fact that communities that consume insects do not consume them out of necessity or because of scarce food resource but they consume it to fulfill their energy needs without increasing their environmental carbon footprint. This fact is supported by the findings that insects are exceptionally efficient in converting what they eat into tissues that can be consumed by others, about twice as efficient as chickens and pigs and more than five times as efficient as beef cattle (Durst and Sono, 2010) [7].

Documentation of edible insects in India is poor and fragmentary although its genesis can be traced back to the year 1957 when Roy & Rao documented the consumption of insects by Muria tribe of Madhya Pradesh. Gope & Prasad (1983) [11]. made a list which included 20 species of insects consumed by various tribes in Manipur. Meyer-Rochow & Changkija (1997) [13]. Made a list of about 42 species of insect consumed by Ao-Nagas in Nagaland. More recently, Chakravorty *et al.* (2011) [4]. Have documented about 102 species of insect being used by different tribes of Arunachal Pradesh. Rabha (2016) [20]. Made an attempt to document the edible insects consumed by the Rabha tribes of Assam, Meghalaya and West Bengal.

Thus from the pursuance of available literature it was observed that documentation of edible insects in Assam is very poor, so, the present study aims to record the practice of entomophagy among the Bodo community residing in Rani area of Kamrup district in Assam to add to the present knowledge about insects possessing edible value.

2. Materials and methodology

The survey was carried out in Rani and its adjoining areas dominated by the Bodo community February 2016 to August 2016 by performing interviews, field studies and through structured interviews (Chakravorty *et al*. 2011) [4]. The specimens were collected with the help of local informants from daily local markets. The people were asked simple questions regarding local name of insects, their harvesting and consumption method.

The insect specimens were preserved following standard methods of preservation (Ghosh & Sengupta, 1982) [9]. And identified with the help of published taxonomic keys (Roonwal & Chhotani, 1989. Chhotani, 1997) [17, 3]. and comparing with the museum specimens of Entomology Division of Zoological Survey of India, Shillong.

3. Results and Discussions

During the survey, it was found that the people consumed 8 species of insect belonging to 6 orders as food, which include aquatic insects such as *Lethocerus indicus* and *Dytiscus marginalis*. Terrestrial insects such as Weaver ant (*Oecophylla smaragdina*), larvae of *Philosamia ricini*, *Antheraea assamensis*, *Bombyx mori*, the alate stage of termites (*Odontotermes sp*.) and mole cricket (*Gryllotalpa Africana*)

Besides these documented ones, reports were also collected on the consumption of different kinds of grasshoppers available near the households, paddy fields or in the market. But as specimens could not be collected, the finding has been kept out of the final report.

The aquatic insects which are consumed such as *Lethocerus indicus* and *Dytiscus marginalis*. are highly valued by the local people. They are either consumed by frying or by making “Chutney”, a form of spicy paste along with garlic and chili.

The eggs of weaver ant *Oecophlylla smaragdina* are consumed by the local people. It is reported to be highly nutritive. They consume it by boiling or frying with different herbs and spices.

The larvae of *Philosamia ricini*, *Antheraea assamensis* and *Bombyx mori* constitute a special delicacy for the local people. They cook and consume it like meat with different spices. In sone cases it was found that, the people also consumed the pupae.

Another find of the study was the consumption of the alate stage of termites (*Odontotermes sp*). It is said to be highly nutritive and as reported by the local people, it is helpful in combating malnutrition.

Another interesting find of the survey was the consumption of *Gryllotalpa africana* (mole cricket). It constituted a delicacy among the locals and it is consumed by frying with different spices.

4. Conclusion

Insect as food is not acceptable in practical terms among the modern societies across the world (Dutta *et al*; 2016) [8]. But with population explosion, the food production in and around the globe is not being able to keep pace. As a result people are being devoid of basic nutrition that is required by the human body. Insects can serve this purpose by supplying the required nutrition at much cheaper cost and contributing very less to ones carbon footprint. For this reason, the documentation of edible insects becomes important from the ethnic and linguistic communities such as the Bodos’, who poses a vast knowledge about entomophagy as they always have been closely related to nature. The documentation would help in long term as it will eliminate the process of investment of time and money in identifying edible insects from the inedible and harmful ones and thereby provide the opportunity to concentrate more on sustainable production of the edible insects and ensure its continuous supply.

5. Reference

1. Bodenheimer FS. Insects as Human Food. The Hague: W. Junk, 1951.
2. Bukkens S. Insect in Human Diet: nutritional aspects I M.G, Paoletti, editor, Ecological implications of minilivestock, role of rodents, frogs, snails and insect for sustainable development. Science publisher, Enfield NH, 2005, 545-577.
3. Chhotani OB. Fauna of India-Isoptera (Termites), Publ. Zoological Survey of India, 1997, 2.
4. Chakravorty J, Ghosh S, Meyer-Rochow VB. Practices of entomophagy and entomotherapy by members of Nyishi and Galo tribes, two ethnic groups of the state of Arunachal Pradesh (North-East India). Journal of Ethnobiology and Ethnomedicine. 2011, 7:5
5. Chakravorty J, Ghosh S, Meyer-Rochow VB, Comparative Survey of Entomophagy and Entomotheraputic Practices in Six tribes of Eastern Arunachal Pradesh (India) Journal of Ethnobiology and Ethnomedicine. 2013, 9:50.
6. De Foliart GR. Insects as a source of protein. Bulletin Entomological Society of America. 1975; 21(3):161-163.
7. Durst PB, Shono K. Proceedings of a workshop on Asia-Pacific resources and their potential for development, Bangkok, FAO Regional office for Asia and Pacific, 2010, 1-4.
8. Dutta L, Ghosh, Sasanka S, Deka P, Deka K. Terrestrial edible insects and their therapeutic value in Moridhal Panchayat of Dhemaji district, Assam, North-east India. International Journal of Fauna and Biological Studies. 2016; 3(6):11-14.
9. Ghosh AK, Sengupta T. Handbook on Insect collection, preservation and study. Publ. Zoological Survey of India, 1982.

10. Ghosh, Sasanka S, Deka K. Therapeutic use of insects by the Garo tribe of Goalpara district, Assam. Zoon, Annual Journal. 2015; 13:59-64.
11. Gope B, Prasad B. Preliminary observations on the nutritional value of some edible insects of Manipur. J ADV Zool. 1983; 4:55.
12. Kodondi KK, Leclercq M, Gaudin-Harding F. Vitamin estimations of three edible species of Attacidae caterpillars from Zaire. Int. J. Vitam. Nutr. Res. 1987; 57:333-334
13. Meyer-Rochow VB, Changkija S, Uses of insects as human food in Papua New Guinea, Australia and North-East India: cross-cultural consideration and cautious conclusions. Ecol Food Nutr.1997; 36:159-185.
14. Mitsuhashi J, Sekai Konchu, Shoko taizen. Yasaka Shobo. Tokyo (Japan), 2008.
15. Oliveira JFS, de Carvalho JP, de Sousa RFXB, Simao MM. The nutritional value of four species of insects consumed in Angola. Ecol Food Nutr, 1976; 5:91-97.
16. Pereira NRO, Ferrarese-Filho M, Matsushita, NE. de Souza: Proximate composition and fatty acid profile of Bombyx mori L. chrysalis toast. J. Food Compos. Anal. 2003; 16:451-457.
17. Roonwal ML, Chhotani OB. Fauna of India-Isoptera (Termites), Publ Zoological Survey of India, 1989, 1.
18. Ramos-Elorduy J. Insect: a sustainable source of food? Ecol Food Nutr, 1997; 36:247-276.
19. Roy JK, Rao RK. Investigation on the diet of the Muria of Bastar district. Bull Dept Anthropology, 1957; 6:33-45.
20. Rabha B. Edible insect as tribal food among the Rabhas of Assam. IRA- International Journal of management and Social sciences. 2016; 3(2):349-357.
21. Srivastava SK, Babu N, Pandey H. Traditional insect bio prospecting—as human food and medicine. Ind J Tradit Knowl. 2009; 8:485-494.