

Ochrophora montana (Distant): a precious dietary supplement during famine in northeastern Himalaya

Cinnamon bug or seed bug, *Ochrophora* (= *Udonga*) *montana* (Distant) (Hemiptera: Pentatomidae) is a serious pest of bamboo, feeds on developing seeds and is able to destroy all available seeds during massive outbreaks¹. Nevertheless, its outbreaks are occasional^{2,3} and were recently (2011) witnessed in Karnataka⁴. Interestingly, periodic outbreaks of *O. montana* are known from the northeastern region (NER) of India, and largely corresponded with mass flowering of bamboos in Mizoram^{5,6}. Being a mega biodiversity hotspot, NER possesses a large number of bamboo species. Mautak or muli bamboo (*Melocanna baccifera*) is the major species in Mizoram. Gregarious flowering of bamboo is a puzzling phenomenon in nature and it is believed to enhance the rodent population, thereby resulting in famine in several parts of the world⁷.

Thingtam and Mautam (flowering of *Bambusa tulda* and *M. baccifera* respectively) are the two important historical events periodically observed at the interval of 48 (± 2) years. In general, both of these events are considered to be a bad omen and the later phase (Mautam) is more severe. According to official records, the first ever Thingtam and Mautam were observed during 1881 and 1911 respectively whereas the last events were witnessed in 1976 and 1958 respectively⁶. Past reports reveal heavy loss in food grains due to rodent outbreaks dur-

ing such events; sometimes 100% yield loss was reported, leading to many deaths and migration of people. In several cases, farmers did not sow crops in the field and depended on other food materials⁸. There were many baffling queries which remained to be solved during the past flowerings. Therefore, the recent Mautam was eagerly awaited by the scientific community, which was expected to occur during 2005–2008.

Several observations were recorded during the recent Mautam (2005–2008) to resolve the mystery of rodent outbreaks in the region. Additionally, formal interviews and focused group discussions were also undertaken all over the state. Gregarious flowering of *M. baccifera* started from 2005 in different places of Mizoram. Surprisingly, heavy outbreak of *O. montana* was recorded just before flowering in almost all the areas and swarms increased tremendously within 24–40 h. These small, brown bugs are locally known as ‘Thangnang’ by the Mizos (Figure 1a). Large swarms of Thangnang were observed during the rainy season in Sabual in Mamit District; Rengetelangsang, Chhimluang, Kalapahar and Saikhawthir in Kolasib District, and Tlungvel in Aizawl District. Many elders narrated similar experiences about Thangnang during past flowering events. Therefore, it is considered to be a harbinger or precursor of famine by the local peoples^{5,6}. Besides, other arthropods

have also been reported to increase during such events, including ‘Nangsi’ bugs (*Stenocoris claviformis* Ahmad), grasshoppers (*Mecopoda elongata* Linnaeus), giant African snails (*Achantina fulica* Bowditch) and leaf-rolling caterpillars (locally known as ‘hnahkhawr pangang’)^{5,9–11}; however, their sudden increase is also an unsolved mystery.

Thangnang is an economically important food for the local people. The bugs appear in swarms and form hives on branches, which sometimes break due to heavy weight. Furthermore, the bugs are easy to collect after a drizzle. Group of farmers were found collecting around 20–30 kg of the bugs in gunny bags, bamboo containers, buckets, etc.

According to the residents, Thangnang is a precious food available profusely only after 50 years during such events. Local people used to fry it in oil (Figure 1b); some locals also make ‘chutney’ using the bugs⁵. Besides, oil is also extracted from the bugs using traditional processing⁹. This oil has high market value in spite of its bad smell and the pure oil is believed to cure many health problems. Locals store a variety of Thangnang-based food items in large quantities to get sufficient food supply for a longer time. It has been a valuable dietary supplement for the poor people during famine. Similar kind of swarms and their consumption has also been reported from other places in Mizoram and the adjoining borders of Manipur, Tripura, Assam and Myanmar^{5,6,9,12,13}. It is also amazing to note that, local tribes selectively exploit only these destructive bugs among other arthropods. Otherwise the whole scenario of rodent outbreaks would perhaps alter, which is believed to occur due to consumption of bamboo seeds. This choosy consumption may be due to the desired palatability and flavour of Thangnang.

Although *O. montana* are plenty during massive outbreaks in other parts of country^{3,4,14}, no report is available regarding its dietetic potential. Despite the high nutritional importance^{15,16}, insect meat is not popular in India; nonetheless some arthropods are eaten in several parts of the country^{15–19}. Furthermore, it would be difficult to give any sound rea-

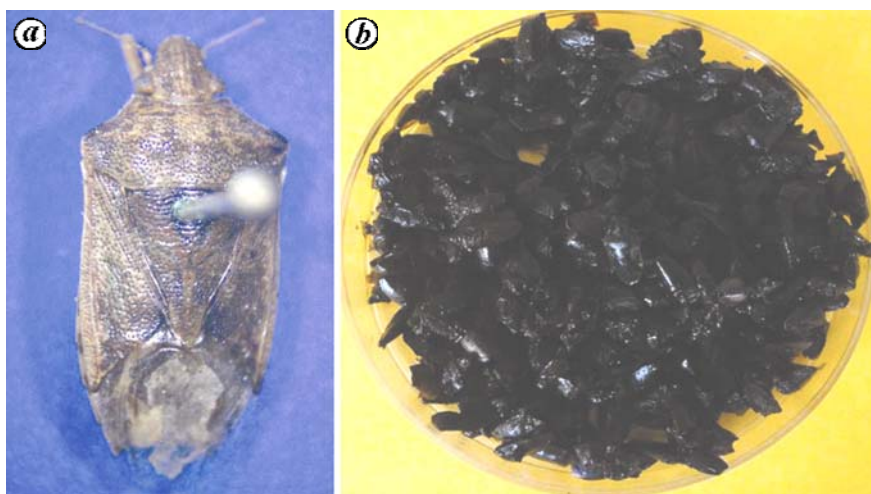


Figure 1. a, ‘Thangnang’ bug. b, Fried bugs.

son as to why we consume oysters, crabs and lobsters, and not the equally clean, palatable and nutritious insects²⁰. Information on medicinal and nutritional value of arthropods would be imperative in future to solve the hunger and health-related problems. Dietary compositions of a few edible insects are recently available in India^{18,19}, showing their superiority over many conventional foods. In this context, it is therefore especially crucial to assess the medicinal value and nutrient composition of different Thangnang-based traditional products.

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