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VESPA BASALIS: AN EDIBLE INSECT IN UKHRUL DISTRICT, MANIPUR

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ABSTRACT

Among the insect fauna, 48 species under various orders had been known to be edible and consumed by 32 native communities. Amongst these, the vespid wasp, *Vespa basalis* (Hymenoptera: Vespidae) is delicious and consumed by the natives Tangkhul- Nagas tribe in Ukhrul district of Manipur. The present observations reveal that this insect is more valued than meat and fishes, and it is found well-coordinated with the culture in the society. In this district, poverty people cannot afford the bee or wasps because of its high cost. The brood of bee and wasp insect species are specially sold during festival. The full-grown instars and pupae are consumed in raw or fried. As well these may be prepared in the form of curries, roasted and salads with common salt, chilli and spices like ginger and garlic. The hive containing the brood of *V. basalis* is sold @Rs.1000-1500/90 cm² of hive during August to November.

Key words: *Vespa basalis*, larvae, pupae, Manipur, Tangkhul-Naga tribe, food, questionnaire, surveys, mode of preparation, marketing, cost, culture

Insect fauna occupies above 90% of all animal population. About one million species of insects have been identified so far. Over 7,000 new species described every year (Kumar, 2001). Insects play both negative and positive roles in the lives of humans. Insects represent a class in traditional food in many cultures of the world. More than thousand insect species are used as food around the globe. The use of insects as part of the human food spectrum or as an item in animal feed to poultry and other livestock could help to achieve food security (Meyer-Rochow, 1975). Insects are still components of the traditional diets of approximately 2 billion people (van Huis et al., 2013) with > 1900 species being edible (Jongema, 2015). Insects are efficient in converting their food into protein, and some species can be reared on organic waste. Compared with conventional meat-producing animals, such as cattle, pigs and poultry, insects can provide the equivalent amount of animal protein using less land and water, in addition to producing much lower levels of greenhouse gases (Dennis et al., 2010). Documentation of traditional knowledge on the utilization of insect resources is inadequate. Due recognition of edible insect utilization is still underestimated, as compare to insect resources utilization in different corners of the world (Chakravorty et al., 2011; Chen et al., 2009; Ramos-Elorduy, 2009).

Manipur, a small state in the north east India has a very rich insect fauna, and of the 16 districts, Ukhrul district (24º-25.41ºN, 94º-94.47ºE; 1764 mm rainfall, 65-85% RH, 20-30ºC during summer and 2º-15ºC in winter) is dominantly inhabited by the Tangkhul community. This community consumes bees and wasps as topped food item. Listing of such edible insects are available (Gope,1983; Pathak and Rao, 2000; Singh, 2007; Chakravorty et al., 2011). But detailed cultural importance associated with particular ethnic tribe is less studied with reference to wasps species in particular. Herein a case study of an important wasp *Vespa basalis* which is consumed as an important edible insect in Ukhrul district of Manipur is presented. Through interviews and observations, efforts have been made to determine the current status.

MATERIALS AND METHODS

Periodical surveys were conducted at the Wino bazaar and Phungyar bazaar of Ukhrul district, Manipur during 2015- 2017. Information on edible wasp was recorded based on personal interview through structured questionnaire collected from ten insect sellers from each market through purposive sampling method (Shantibala et al., 2012). The data collected involved the source and norm of collection, marketing, mode of preparation of the food, sociology, gastronomy etc. The wasp species collected was sent to the Indian Agricultural Research Institute, New Delhi for identification.

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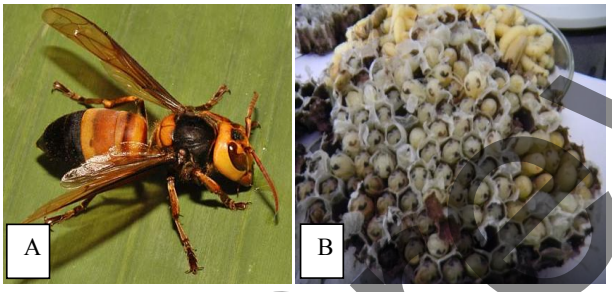
RESULTS AND DISCUSSION

The study has observed the edible wasp species, *Vespa basalis* (Vespidae: Hymenoptera) from Ukhrul district of Manipur (Fig. 1). Among the 16 districts, Ukhrul is one of the 16 districts with rich diverse fauna and flora (1662 masl). The district is mainly inhabited by Tangkhul tribe. The edible wasp was observed selling at the Wino Bazaar which is main market of Ukhrul district. The habit of eating insect is a common phenomenon among the Tangkhul tribe. According to the respondents, many bees and wasps are among the most favourite edible insects among the natives. This food is more valued than meat and fish and has a close cultural association. Traditionally whenever a married woman came to maternal home, the daughter should be offered with the curry of wasp or bee larvae. Historically, insects are treated as food for the poor people (Sangpradub, 1982). However, in this case, eating wasps and bees is a customary practice. In Ukhrul district, poor people cannot afford the bee or wasps because of its high price. Such brood are specially sold in festival.



A. brood B. adult

Fig. 1. *Vespa basalis*

Thai people confirm that bees and wasps are the most important of the insect foods of northern Thailand, and the Buddhist monks consumed bees, royal jelly, and honey (Wongsiri et al., 1995). Many farmers and bee hunters regularly collect brood containing nests of *Apis* spp. and *Vespa* spp. (Wongsiri, 1983). The mode of preparation differs and two ways in food preparation are involved. First, the specific flavour of insects are used as an important ingredient in a product made primarily from something else. For instance, sex pheromone glands of giant water bugs (*Lethocerus indicus)* are added as flavouring to banana pseudostem preparation in Manipur to form a product call "laphu iromba" which is a common dish. Fresh ants, because of their rich formic acid content, are used as ingredients in salad dressing and contribute flavour in much the same way as the acetic acid of vinegar (Chen, 1998). In the second way, insects are consumed as main ingredient of the dishes. Bee or wasp larvae are prepared as "fresh" or as roasted, fried, or steamed and used in curries and salads. From the listed three ways of preparation, fried form with ginger and garlic is more preferred (Fig. 2).

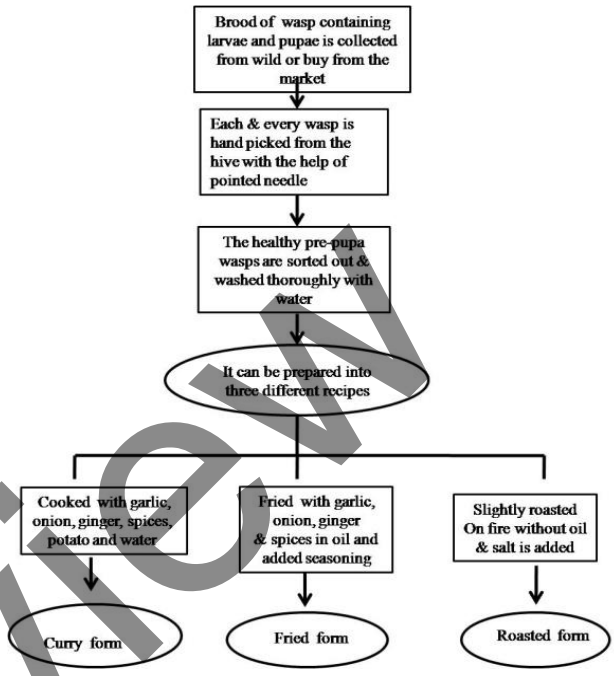


Fig. 2. Procedure of edible wasp food preparation

Many farmers and bee hunters regularly collect the brood containing nests of *Apis* spp. and *Vespa* spp. Such activities serve biological control goals and at the same time enhance the economic prospects of farmers with small holdings (Wongsiri, 1983). Since it is associated with the culture of the Tangkhul tribe in the Ukhrul district of Manipur, it is a common practice to hunt bees and wasps from the wild and to sell in the market. Approximately, a hive containing the brood of *V. basalis* is sold @Rs.1000-1500/ 30cm^2 size of hive during October and November. In Ukhrul district, Manipur, the selling of this important insect has not been found throughout the year as observed in the last three years. However, during August-November, these edible insects, brood and pupal stages are available. Its market seems to be uncommon but during this period these are available for high cost.

Marketing of honey bee nests is the most obvious use of insects as food in the food markets of Thailand (Wongsiri and Chen, 1995). About 40 to 50 stands specializing in bee nests line both sides of the Phitsanulok- Nakhonsawan highway about 20 km from

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downtown. To the degree that they are successful, such endeavour will reduce the hunting pressure on wild honey bee nests and help preserve the biodiversity of the ecosystems with these pollinators (Wongsiri et al.,1992).

Most of the edible insects are harvested from the wild and this uncontrolled exploitation could lead to ecological consequences which to date remain largely unexplored (Meyer-Rochow, 2010). Few, however, fulfil the criterion of being domesticated and that is a problem. In the tropical regions of the world numerous ethnic populations are known to accept bee brood (larvae and pupae) as food. The nutritional potential of bee brood and adult honey bees is known and these are good sources of protein, fat and micronutrients, including minerals and vitamins (Ryan et al., 1983; Ozimek et al., 1985; Finke, 2005). There exists a potential for consumption of bees and wasps and proper domestication should be promoted.

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