

# Entomophagy practices among the tribes of Andhra Pradesh

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Tribal lifestyle is closely connected with nature, they protect biodiversity and maintain the balance of nature through their cultural practices. Entomophagy is one such practice by which even adverse insect pests also can be utilized for human well-being by turning them into a tasty delicacy for human consumption. For example, the global pest ‘locusts’ are considered as absolute delicacy by local tribes in some countries like Nairobi, Israel, Mexico, Thailand and Kuwait where the local tribes catch the desert locust swarms and eat them as kebabs, biriyani, salads and even chocolate coated locusts are served as desserts (Shenoy, 2020). The Australian government encourages people to eat locusts which are regarded as “sky prawns”. Dishes like locust dumplings and locust popcorn is prepared and eaten by locals to cope with the locust invasions (Van Huis et al., 2014).

Nowadays, in many countries, insect delicacies are being produced on a commercial scale and are available in markets in several forms like chutneys, powders and pastes along with some spices for additional taste. Energy bars prepared with crickets flour is very famous in United States (Bartrim, 2017). However, in India entomophagy is restricted to tribal communities. People consume insects for their peculiar taste, flavor and nutritional values.

Unlike livestock animals and poultry birds, insects are cold blooded and have more efficiently convert ingested food into body weight hence they are regarded as a source of unconventional protein (Van Huis et al., 2013). Many insect based foods are known for their authentic taste and also for good nutritional value including protein, lipids, minerals, vitamins and salts (Ramos-Elorduy, 2009). Apart from being nutritionally rich, they also have potential medicinal and therapeutic properties (Devi et al., 2022).

In India, about 255 species of insects are consumed as food in various parts by different tribes (Chakravorty, 2014). The practice of entomophagy by ethnic tribes of North Eastern states is well known than other parts of India (Devi et al., 2022). Our present study is to bring into the limelight of the edible insect species and traditional insect based foods consumed by different tribes of Andhra Pradesh.

## 1. Palm weevil grubs

The tribes viz., Khond, Kuvi, Bagata and Koya are major inhabitants of Araku valley and other parts of Vizag agency in the state of Andhra Pradesh, traditionally practice entomophagy and prefer to eat grubs of silver date palm weevil, *Rhyncophorus* sp. which are locally called “bodengalu”. The *Phoenix Sylvestris* commonly called as Indian date palm or



Fig. 1. A. Palm grubs; B. Dish prepared with palm grubs



Fig. 2. Fried wasp grubs



Fig. 3. Roasted termites served as a snack

silver date palm or wild date palm and as khajuri in Hindi, etha chettu in Telugu. During rainy season, the palm species sprout profusely and grown abundantly on the hills of the region. The young shoots are infested by apodous, stout, whitish grubs having a well sclerotized dark red to brownish head (Fig. 1A). The body of grubs are soft and filled with fatty tissue and hide themselves at the center of the shoot where they feed on the succulent portions of palm shoots. The grub infested shoots show rotting symptoms, apical leaves turn yellow and chewed fibrous materials found near the base of the infested shoots. The local tribes are highly skilled in catching these grubs, they spot such rotting shoots and dig at the base to collect the grubs from November to February. Each palm weevil grub contains approximately 23% crude protein content (Opara et al., 2012). The local people regard them as “Agency prawns” and eat in many ways, they collect the grubs, clean them and heads of the grubs are pinched off then mixed thoroughly with salt and chilli paste, placed in a leaf pouch made with *Bauhinia vahli* (addakulu) leaves and tied with fiber for fire roasting. Grubs are also eaten as a curry prepared by boiling them along with some spices for enhanced taste (Fig. 1B) and the locals believe that it is rich in many nutrients, specially fed to patients suffering from anemia (Sudhir, 2017).

## 2. Wasp grubs

Wasps are carnivores, mainly feed on beneficial honey bees hence they are regarded as honey bee enemies. They usually hunt the bees, caterpillars and also some flies by stinging with their sharp pointed ovipositor to paralyze them with their venom and carried to their colonies to consume as food for themselves and also for their progeny. Wasps are social insects and live as colonies by constructing nests. Wasp nests grow downwards as successive layers are added underneath

the existing layers. The brood chamber is constructed in the shape of an inverted umbrella and the brood is reared in hexagonal honeycomb like cells but without any cappings. The wasp comb or nest is called “kandireega pattu/ kandireega putta” by local tribes. They collect this wasp colony by smoking with help of dried palm leaves tied to a long stick. After that, they unopen the nest for collection of grubs and fill them into a leaf basket along with salt and some spices. The leaf basket edges were closed by tying with any natural fibers and then placed in the fire. The roasted wasp grubs are enjoyed as a tasty delicacy by several tribal people of Andhra Pradesh (Fig. 2).

## 3. Winged termites

Termites or white ants are known as silent destructors that can eat away almost all kinds of woody vegetation. They are subterranean insects, eusocial, form a colony comprises four castes viz., king, queen, soldiers and workers. However, winged termite is another caste that develop within a colony as secondary reproductive adults inside a termitarium. They form once a year during a certain period of time when the colony is longing to spread and multiply. Rainy or monsoon season is most congenial to termites for spreading their colony.

Termites are the most common species for entomophagy and are fondly eaten by many tribes throughout India (Jahnavi, 2020). In Andhra Pradesh, especially tribal people of Tirupati call them as “eesurlu or usillu” and are fascinated to catch swarms of winged termites. The termite swarms are attracted to the light source and are caught during dusk. Wings are removed by rubbing them repeatedly on a cloth or towel, later the de-winged termites are cleaned by washing in water then dried for some time before roasting. The roasted termites in earthen pots are fondly eaten as a snack by children and is regarded as



Fig. 4. Red ant chutney

a seasonal delicacy available during monsoons (Fig. 3).

#### 4. red ants

Red ants are consumed by certain tribes in Andhra Pradesh from the areas adjoining to Odisha and also by adivasis of Cherla and Dummugudem areas of Telangana (Anonymous, 2022). The tribal people collect the ant nests from the trees with bare hands only as they believe that ant bites can cure many diseases. The ants and their eggs are separated, adult ants are crushed into paste with help of a mortar and pestle and used for making soups. These soups are consumed and are known to improve eye sight as well as reduce acidity problem (Patnaik, 2018). Pickle with ant eggs is made by boiling them in plain water, then they are ground by adding onion, green chilli and salt. This pickle is consumed along with rice during summers known to have cooling effects on body. Fried ant eggs are also eaten as a snack.

#### Insect farming

Insects have rapid growth rate, emit low greenhouse gas and require very less area for their cultivation. Rearing of crickets for human consumption is a widespread commercial activity in countries like Thailand where about 750 kg of crickets in a period of 45 days being produced in farms (Nadeau 2015). In the United States, start-ups based on edible insects *viz.*, Rainbow Mealworms, San Diego Wax Worms, Small Stock Foods are growing rapidly. In Australia a company called “edible bug shop” is producing approximately 800 kilograms of crickets and 400 kilograms of mealworms per month fetching good price in the market where a 200g packet of cricket protein powder being sold for \$40 (Bartrim, 2017). Thus, insect farming can be an innovative and profitable alternative for feeding the growing population.

#### GI tag to insect delicacies

Recently in 2022 GI tag was provided for a traditional insect delicacy i.e., the red weaver ant *Oecophylla smaragdina* chutney (Fig. 4) of Mayurbhanj district of Odisha (Barik, 2022). The dish is locally called as Kai chutney very famous among tribal community for its fiery taste as well as for its medicinal properties. Government support by recognizing traditional food practices such as entomophagy is substantial.

#### Conclusion

Tribal people practice entomophagy and their knowledge of edible insect species was acquired from generation to generation, and to conserve such precious indigenous knowledge, proper documentation is necessary. Insect based foods are nutrient rich and can be an excellent alternative food option for feeding the growing population. In view of nutritional and ecological benefits, psychological motivation needs to be enhanced among people to adopt entomophagy.

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