Chapter 6
Summary and conclusion

6. Summary and conclusion

Blind screening of any new resource is always expensive and time overriding. But still quest for new resources continue. The quest for new food resources has lead to the discovery of vibrant culture of entomophagy that is still prominent among the Bodos of Assam, India. The quest has resulted in the new entry of twenty five species into the edible insects list. Among the twenty five, seventeen species were new inclusions of which five were completely new and unidentified species. Data on species names, vernacular names, habitat and alleged local abundance is important for the development of an edible insect database. In common with other countries wherein entomophagy is practiced and insects foods are mostly preferred owing to their good taste and nutrition there is also sufficient information on the decline of entomophagy and its knowledge specifically due to changes in lifestyle and to a professed decline in edible insects. Although the insect decline is believed to be caused due to climatic factors, there is a also a strong possibility that this may be due to habitat transformation and that should be further investigated. The emergence and development of many insects is significantly influenced by food quality, temperature and rainfall. The availability of these insects as a freely accessible source of protein can therefore be mollified by predicted changes in climate.

Promotion of edible insect consumption can contribute in broadening horizons for food diversification. On the other hand, it should be assured and implemented that such a resource is not overexploited and the viability of domestication or semi-domestication determined. For the implementing this collecting information on the biology of the insects is imperative. There is a common believe among the local people that formal education is superior to the knowledge obsessed by older generations. This thinking often leads to the underestimation of traditional knowledge. But it should be always born in mind that traditional knowledge are the bases of modern knowledge. Linking traditional knowledge to modern has helped us to discover new food resources as edible insects.

Beef, pork, chicken, egg, fish and mushroom are mostly studied for their protein values. This study revealed that most insects have higher protein contents

than beef, pork, chicken, egg, fish and mushrooms. It also clearly justifies the traditional perceptions attached to entomophagy as insects have high protein and nutritional content. So now it can be promoted as a healthier alternative to beef, pork, chicken, egg, fish and mushroom sources or used in therapeutics owing to its high protein content. Edible insects studied also depicted high iron and copper contents when judged in terms of the reference dietary intake values for adults. Insects with higher iron content can be used for combating iron deficiency related issues. Nutritional and toxicological studies on the insect showed that it is nutritionally safe. Insect oils are good sources of PUFAs due to the presence of linoleic acid and most insects potentially offer this added health benefits. Therefore; most insect oils with PUFAs represent a potential source of oil that can be harvested for commercial purposes that can lead to nutritional, health and economic benefits.

Before assuming any new food source as safe and good, factors as method of food collection or food production processes should be carefully monitored to avoid potential risk of pesticide residues contamination. Risks of pesticide contamination are not frequent in the studied areas but their existence prevails and hence should be considered imperative. This study also confirms that the edible insects consumed by the Bodos of Assam were not exposed to any type of toxicity.

Knowing the nutritional profile of any food is crucial to understand the health implications of any food that is promoted. This study revealed that edible insects are rich in proteins, minerals and fats and is free of toxicity or any ill effects. The high protein content suggests the potential of the studied species for combating deficiency of proteins. Toxicological studies on four insect species showed that they are nutritionally safe. The result of the nutritional analysis may provide a scientific basis for the comprehensive utilization of insect and possibly its application as a food source and in therapeutic approaches. The novelty of the findings of the present study suggests that insects can be used as a nutritionally promising food source in terms of its high protein content, good amino acid composition, PUFAs and good protein digestibility. This study also suggest the sustainable use of edible insects as well as the promotion and validation of indigenous knowledge.