Case Study on Regional Standard for Edible Crickets and their products

Presented by LAO PDR

Outline

• Presentation of the product and related issues as subject of the regional standard
• Explanation of its relevance to the region
• Background of proposed regional standard for Edible Crickets & their products
• Collaboration among countries in the region to work on the regional standard
• Conclusions
• Constraints
• Recommendations
I. Introduction

- Eating of insects (entomophagy) has a long history as part of human diets and a large number of insect species are consumed in many parts of the world.
- For approximately 2.5 billion people, mainly in Africa, Asia and Latin America, eating insects is part of their common diets in a similar way as eating meat or fish.
  - More than 1600 species of insects are eaten worldwide
- Insects constitute high quality food for humans and animals, and there is a great potential and growing global interest for utilization of insects as food resource to complement the diets of continuously growing populations
  - Insects represent an important source of proteins (20 to 70% of dry weight), micro-nutrients (vitamins, minerals)

Importance of product in region

- In Asia, there are also food cultures widely utilizing the edible insects in variable ways in diets.
- Up to 164 species of edible insect are consumed in South-East Asia (Lao PDR, Myanmar, Thailand and Vietnam)
- 178 edible species identified and named in China and approximately 80 species known to be eaten in non-urban areas of Borneo
- In Vientiane, capital of Lao PDR, at least 21 edible species have been identified from consumer markets
- Recent survey made by the Food and Agriculture Organization of United Nations (FAO) reveals that up to 95 % of Laotian population is eating insects, of which ant eggs, crickets and grasshoppers are most preferred species
Prevalence of insect consumption in adults in Lao PDR

- 97% eat insects
- 83% usual collectors
- 64% never purchased insects

Top 10 edible insects in Laos

1. Chi Nai
2. Khai Mot Dieng
3. Chi Lor
4. Chak Chan
5. Bamboo worm
6. Wasp
7. Mole cricket
8. Grasshopper
9. Cicada
10. Giant water bug

Legend - Prevalence
- Missing or Excluded
- 54.00 to 55.00
- 55.01 to 56.00
- 56.01 to 57.00
- 57.01 and Above

FAO survey
Edible Cricket In Laos

1. Chi Nai

3. Chi Lor

Edible Crickets

Insect business

Wild harvesting

Farm

Wild Crickets: As many as 87% of the population collect insects from the wild

Farm Crickets
The best selling insect according to the region

- Five insects represent 85% of insects
- Short-tailed Cricket, Weaver ant eggs, Bamboo worm, Cricket, Wasp

Where insects are sold?

How?

<table>
<thead>
<tr>
<th>Market</th>
<th>Houses</th>
<th>On the road side</th>
<th>Restaurant</th>
<th>Outside of market</th>
<th>Insects farm</th>
</tr>
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<tbody>
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<table>
<thead>
<tr>
<th>Live</th>
<th>Cooked</th>
<th>Smoked</th>
<th>Dried</th>
<th>Frozen</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.2</td>
<td>17.3</td>
<td>6.3</td>
<td>3.2</td>
<td>0.8</td>
</tr>
</tbody>
</table>
Safety and side effects

- **Rare reports**
  - Poisonous
  - Allergy
  - Stomach ache
  - Vomiting
  - Dizziness
  - Abdominal pain
  - Intoxication
  - Diarrhea

81 (7.8%) reports of side effects
Hazards and food safety risks in edible insects

Risk of pesticides

• Risk in general: Consumption of food contaminated with levels of pesticides, or their residues, can cause various health problems usually occurring after long period of time
• Risk of pesticides in insects:
  – Pesticides (insecticides, herbicides..) used at the location where insects are collected for food and carry over to the humans as chemical residues accumulated in insects
• No scientific evidence on levels of residues in live insects
• In case of wild harvested insects, its nearly impossible to estimate their exposure to chemicals

How much bigger is the risk to eat grasshoppers than tomatoes?

II. Explanation of relevance of standards to the region

• As an important part of diet it is important to ensure the safety of insects
• Trade in the region exists but data not available as mostly informal trade
• Potential hazards – pesticides, heavy metals, pathogens and toxins
• So far no information on standards is available, so the quality and safety of products cannot be determined
• Currently no standards by Codex
• Need to have standards on end products as well as hygienic practices during production to consumption
• This will contribute to protect consumer’s health and ensure fair practices in the international trade of these edible insect products in countries of the region
III. Background of proposed regional standard for Edible Crickets & their products

- Subject proposed in last CCASIA meeting & emphasized that this would contribute to protect consumers’ health & ensure fair trade

- CCASIA noted that insects were consumed in some countries and there was a great potential & growing global interest for utilization of insects as food resource & generally supported the proposal.

- Some delegations requested clarification as to the nature of products to be covered by the Standard, the level of trade & the dimension of production. It was noted that these data were not available since most of the trade was in the informal sector.

- An electronic WG, open to all Members of the region and Observers, to prepare revised discussion paper the development of regional standard for edible crickets and their products (led by Lao PDR) for consideration at the next session.

IV. Collaboration among countries in the region to work on the regional standard

- The discussion papers on the development of regional standard for edible crickets & their products circulated in August 2011 to all interested Regional Codex members and observers to assist in this task.

- Many countries responded that insects have been consumed but data are not available such as imported and exported data (Thailand, Vietnam, France.....)
  - Data on the consumption from Thailand

- Information on cricket trade in the border area (between Cambodia, Thailand, Laos...) hundreds of kilos or even tons of insects are collected in Cambodia. Then these insects are exported to Thailand: unknown about this market, more information in the Thai field survey part.
IV. Collaboration among countries in the region to work on the regional standard

– Discussion paper could not be prepared due to
  • No exchange figures about insect trade
    – Volume of production and consumption in individual countries and volume and pattern of trade between countries are not available
  • No national legislation on safety standards on edible insect reflected to International trade
    – Safety standard on microbiology, chemical and hygiene practice
  • No data on international or Regional market potential
– Data on the consumption of some country is available therefore Safe domestic standard is needed

Product diversification by markets

Wholesale market
Fresh/live (cooled)

Local market/
Street vendor
(Cooked/processed)

Supermarket
Mini Mart

OTOP
Souvenir

Restaurant
Fresh/live

The development of edible insect: Case study from Thailand (Tasanee)
V. Conclusion

- Insects contribute to the Lao diet and insect consumption is well accepted by adults and children
- Most of the Lao people harvest insect for their own family consumption
- Developing insect farming may contribute to generation of income and decrease the impact on environment of extensive harvesting and protect the source of insects (forest), improve food security, and improve availability and insects’ seasonal gap.
- Increasing production of edible insects and insects consumption should be promoted

Constraints

- No data on market demand (market potential)
- No data on the export volume of edible crickets and products in the region
- No market data of Lao’edible crickets
- Knowledge and experience on development standard is limited
- Lack of qualified persons to work on development standard
Recommendation

- Data collection on edible insect in the region are needed especially the volume of production and consumption in individual countries and volume and pattern of trade between countries.
- International Expert on development standard are needed
- Analysis capability on the toxicity of edible insects
- This standard should shared with other countries such Cambodia was the most supporting of this standard and Thailand is obviously the most productive country in this area and other countries who are interesting.