PHILIPPINE HONEY: Issues, Problems and Standardization

AC Manila-Fajardo and CR Cervancia

IBS-CAS, UP Los Banos, Philippines

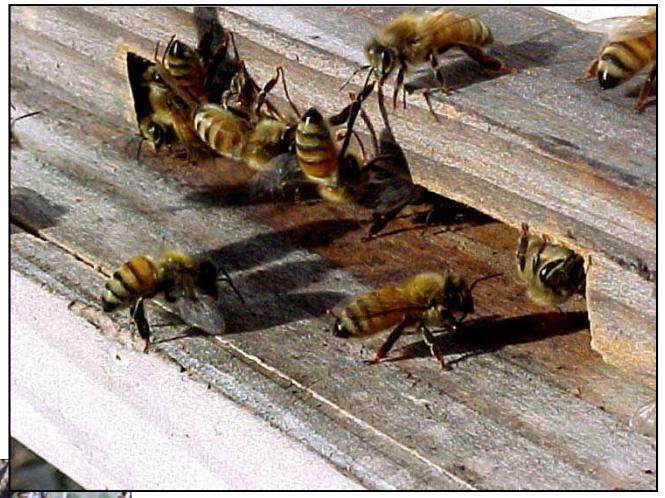
Honey

Cheapest well-known bee product from floral nectaries

Different in physical and chemical properties

Philippine Honey

- Sources



Philippine Honey

- Wild organic honey
  - ✓from feral colonies
  - ✓commonly found in stores
  - ✓cheap energy source

Problem: Adulteration

Objectives

- Characterize Philippine honey
- Propose criteria for its evaluation
- Discuss the problems with bee products in the Philippines
- Suggest strategies to upgrade the products for safety consumption

Methodology

- Evaluation using the Harmonised Methods for Honey Analysis (Bogdanov et al, 1997)
  - ✓Samples submitted in the laboratory
  - ✓Off-shelf procurement

Results

Table 1. Summarized comparative evaluation of honey samples.

Parameter	Philippine mellifera honey	Philippine wild honey	
		dorsata	cerana
Electrical conductivity (mS/cm)	0.13-1.0	0.5-2.2	0.4-1.2
pH	3.0-4.2	2.4-3.5	2.8-3.8
Moisture content (%)	17.3-25.1	22-28	21-24
Liability of fermentation	Negative to Low	High	Medium to High
Apparent Reducing Sugars (%)	61-88%	40-75%	40-68%
Apparent Sucrose (%)	1-15%	5-11%	5-37.5%
Hydroxymethyfurfural (mg/kg)	22 to >40	10 to >40	>40

Issues and Problems

- **Moisture Content (MC) and Microbial Growth**
  - ✓ High MC = High relative humidity (RH) in the country
  - ✓ Depends on bee species, nectar source, time of harvesting and RH
  - ✓ Normal : *A. dorsata* (23–26%)
    A. cerana (21–23%)

Issues and Problems

- **Moisture Content (MC) and Microbial Growth**

✓ Leads to higher liability of fermentation

✓ Favours microbial growth

A. dorsata = wine; *A. mellifera* = vinegar

✓ Sources of microbial contamination

Pollen Air

Earth Nectar

Dust Digestive tracts of honey bees

Issues and Problems

- **Electrical Conductivity (EC) and its relation to handling and processing**
  - ✓ EC high in wild honey
  - ✓ From unsanitary and improper handling squeezing honey using loin cloths
  - ✓ Usage of recycled bottles and caps

Issues and Problems

- **Sugars, Adulteration and the "Green Honey" Case**

  - ✓ Apparent reducing sugars: mellifera > wild
  - ✓ Apparent sucrose (AS): adulteration observed in cerana honey (37.5% AS)
  - ✓ HMF very high
    - ➢ Adulteration, long storage and transport, fermentation
      - ➢ 50% from supermarkets = >40meq

Issues and Problems

- ✓ Misrepresentation (Labelling adulterated honey and sugar syrup as honey)

Tilde et al., 1992 – 80% stores along Los Banos sold adulterated honey)

- ✓ Adulteration by addition of food color or sugar syrup

- ✓ Selling harvested feeding during dearth period

Issues and Problems

"Green Honey"

- from island of Palawan
- said to have come from a species of wasp
- MC >25% and AS 23-48%

Schemes for improving Philippine Honey quality

- Timing of harvest
- Dehumidification
- Developed technologies for handling native bees
- Analytical tests
- Exhaustive Information Dissemination
- Best Management Practices

Best Management Practices (Working guidelines)

- ✓Establishment of zoning areas
- ✓Informing people of apiary activities
- ✓Procurement of queens from recognized breeders or importers
- ✓Provision of nearby water source

Best Management Practices (Working guidelines)

- ✓Quarantining
- ✓Manipulations on conditions best fit
- ✓Irradiation of beeswax and other equipment
- ✓Appropriate transportation measures for bees
- ✓Informed consent for visitation in apiaries

Conclusion

- Differences in physico-chemical properties requires a separate set of standards
- Varied conditions and rich biodiversity in the Philippines makes it difficult to actually specify physical, chemical and even biological characteristics of honey
- More researches needed to propose standards applicable for the Philippine honey

THANK YOU