



BACTERIOLOGICAL EVALUATION OF HONEY SOLD IN THE MARKET

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Abstract

Honey is a sweet and viscous fluid produced by honey bees or some other species from the nector of the flowers .Its high osmosity is due to the high sugar content.The sugar present in honey are fructose, glucose, maltose sucrose and other type of carbohydrates . Honey is best for human health but being containing high carbohydrates content it is susceptible to contamination by micro organisms. The present study includes the bacteriological analysis of different honey sold in market the bacteria isolated from different honey sample are s. aureus ,E.coli ,S.typhi. Pseudomonas and bacillus species . Such honey instant of give health benefit may cause serious health problems.

Keywords: Nector, Osmosity, Bacillus.

Introduction:

The study was designed to investigate the bacterial contamination present in honey. Honey is sweat and viscous fluid produce by honey bees or some other species from the nactor of the flower its high osmolarity is due to the high sugar content including fructose, glucose, maltose, sucrose and other types carbohydrates. Honeys properties as a natural product make it popular for consumption for health benefit. However it is susceptible for contamination from variety of microorganism during collection, transporting ,handling and packaging. Thus this product are polluted via

different source of contamination. Bacteria , yeast and moulds may found in honey.

Material and method

Materials

The nutrient medium such as Manitol salt agar, Bismuth sulfite agar, Cetrimide agar ,Mac-Ckonkey agar, nutrient agar and reagents use are of HI media, India.

Sample collection:

Four branded sealed and four local loose sample are purchased from market and taken to microbiology laboratory for bacteriological investigation .

Method

a) Standard plate count by pour plate method was carried out to analyse the honey sample microbiologically for total heterotrophic bacteria.

b) All honey sample included on following selective and other nutrient medium for isolation of pathogenic and coliform bacteria .The bacteria isolated where identify by gram staining, endospore staining ,biochemical test and enzyme test.

Isolation of pathogenic bacteria

From 1:10 dilution inoculated on selective medium for isolation of pathogenic microorganism

Selective medias are :

- Manitol salt agar -for s.aureas
- Bismuth sulfite agar -for salmonella
- Cetrimide agar -for pseudomonas
- Eosin methylen blue agar -for E.coli

A) Standard plate count for total heterotrophic bacteria .

Table 1]

sample	Number of bacteria /ml
Honey B ₁	Uncountable
Honey B ₂	Uncountable
Honey B ₃	Uncountable
Honey B ₄	Uncountable
Honey L ₁	Uncountable
Honey L ₂	Uncountable
Honey L ₃	Uncountable
Honey L ₄	Uncountable

All the eight honey sample plated by pour plate technique was incubated at 37°C for 24hrs. After 24 hrs ,all the plates with dilution 1:10 ,1:100 ,1:1000, 1:10000 shows enormous colonies

which are uncountable. It shows poor condition of honey as it contains tremendous bacteria. B] Isolation of pathogenic bacteria and coliforms:

Table 2]

sample	Growth on medium				
	MSA	BSA	EMB	Cetrimide agar	MacConkey Broth
Honey B ₁	s.aureus	S .typhi	-	-	Acid+gas
Honey B ₂	s.aureus	S .typhi	-	-	Acid+gas
Honey B ₃	s.aureus	S .typhi	-	-	Acid+gas
Honey B ₄	s.aureus	S .typhi	-	-	Acid+gas
Honey L ₁	s.aureus	S .typhi	-	-	Acid+gas
Honey L ₂	S.aureus	S.typhi	-	-	Acid+gas
Honey L ₃	S .aureus	S.typhi	-	-	Acid+gas
Honey L ₄	S .aureus	S.typhi	-	-	Acid+gas

All the eight sample shows presence of s.aureus a growth on manitol salt agar which is confirmed by biochemical test. All eight sample shows presence of salmonella, a growth on bismuth sulfite agar which is confirmed by biochemical test. E.coli and pseudomonas absent in all eight samples . Coliforms present in all eight samples.

Conclusion

The bacteriological examination of honey shows that , branded as well as local sold honey are prone to bacterial contamination and not safe.

References

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