

Economics of beekeeping

The chief products of bee keeping industries are honey and bee wax.

1. Honey. It is truly an insect product of high nutritive value. The food values of honey may be estimated by the presence of about 80% sugar in it.
2. Bee wax: It is very useful by products of bee keeping industries. It is used in the manufacture of cosmetic, candles etc.

Production of honey

- In the production of honey, the nectar, pollen and cane sugar bearing secretion of flowers are ingested by honeybees get mixed with the saliva and undergo certain chemical changes due to enzyme action. At this stage cane sugar (sucrose) is converted into invert sugar i.e., Dextrose and Levulose. At this time some ingredients of bees are also added to the mixture & reduced the water content. The whole mixture then collected in the honey sac until the honey reaches the hive. As the honeybee reaches the hive cell and is known as the honey. Now honey is concentrated by a strong current of air produced by the rapid beating of workers wings crawling over the cells.
- Honey is very much sweet in taste and white to black in colour with variable smell in accordance with the juice collected from different flowers.

Chemical composition of honey-

Honey is sugar rich compound having:

- Levulose-38.19%
- Dextrose-21.28%
- Maltose 8.81%
- Enzymes and pigments 2.21% ash 1.0%,
- water 17.20%

Storage of honey

After long duration in stored condition, the honey may be granulated or fermented.

(a) **Granulation of honey**: The stored honey becomes granular after long duration. Such type of granulation property is the best evidence of pure honey. It is considered that 10 parts of Dextrose combine with 1 part of water hence forms crystals. Due to less solubility Levulose is not crystalized and gives cloudy appearance crystallization is mainly accelerated by the presence pf minute air bubbles, colloids, and pollens.

(b) **Fermentation of Honey**: After crystallization honey is subjected to fermentation. due to crystallization of honey and the action of yeast present in air, flowers and soils takes on levulose and dextrose resulting in formation of honey.



Bee wax: It is very useful by products of bee keeping industries It is insoluble in water and greyish brown or yellowish in colour and completely soluble in ether. Generally, bee wax is the composition of alcohol, fatty acids, and paraffin in varying proportion. The various bee wax is differed only due to change in the proportions of these constituents. The bee wax is exported and mainly comes from *Apis dorsata*.

Economic importance of bee wax: It is used in the manufacture of cosmetic, candles for catholic churches, face cream, paints, plastic works, polishes, carbon paper and many other lubricants. it is also used in laboratory for microtomy.