

## HONEYBEE SPECIES IN INDIA

### Rock Bee (*Apis dorsata*)

- Large in size and ferocious bees, construct a single comb in the open area. u
- Found all over the subcontinent mainly in the forests, in hilly regions ( here they construct their nest up to an altitude of 2700 mt.).
- Mostly these bees construct their combs at a height of more than 20 ft from the ground, but in some cases, we can also see the colonies hanging from branches just above 2 ft from the ground.
- Nearly 50–80 kg of honey can be squeezed from a single colony of rock bee per year (Mishra 1995).
- Colonies of *A. dorsata* may occur singly or in groups. The lower part of the comb is the energetic area in which the foraging and scout bees will take off and land.
- *Apis dorsata binghami* is another subspecies which is distributed in restricted areas of the north-east, namely, in Khasi Hills, Sikkim and Meghalaya (Allen 1995; Otis 1996).
- As these bees are aggressive, they will attack the intruders (Ramchandra et al. 2012) very often, and can chase even up to 100 m. Sometimes these bee stings can turn fatal to the humans.
- Because of danger involved in harvesting rock bee honey, it is generally priced high locally.
- The total number of *A. dorsata* nests all over Asia is now declining, partly due to shrinking forest areas, the use of toxic pesticides in foraging farm lands and bee hunting.

## 2. Little Bee (*Apis florea*)

- *Apis florea* or dwarf honeybees are small and less ferocious than the rock bees are found only in plains and not in hills.
- These bees mainly build single vertical combs (Hepburn and Radloff 2011; Wongsiri et al. 1996), but also construct palm- sized combs in the bushes, hedges, buildings, caves, empty cases, etc. (*The major difference between the rock bee and little bee comb is that the little bees construct combs encircling the twigs while the rock bees construct the comb on the undersurface of the branch*).
- The honey produced by these bees is only about half a kilo of honey per year per hive. However, in the Kutch area of Gujarat, large quantities of honey from *A. florea* are harvested (Soman and Chawda 1996).
- As these bees also have a habit of shifting their colonies frequently, they are also non-rearable, but attempts in India have brought partial success (Mishra 1995).
- These bees are attractively coloured with red to brown colouration having white bands and are excellent pollinators.
- Some interesting behaviours of *A. florea* include-
  - Can camouflage in dense forests,
  - produce adhesive barriers to obstruct the ant's ( *Oecophylla smaragdina*, the weaver ant) path when these predator ants are in close proximity,
  - Can produce hissing sounds when they see a predator and this hissing sound is audible to human ear.

### 3. Indian Bee (*Apis cerana*)

- Indian honeybee or Eastern honeybee was the only rearable bee spp. in India prior to the introduction of Italian bee.
- It is also found and has been domesticated in Pakistan, Nepal, Burma, Bangladesh, Sri Lanka and Thailand.
- These are comparatively non-aggressive and rarely shift locations.
- These bees construct multiple parallel combs in dark places such as clay pots, logs, wall, tree openings, etc. and produce 7–9 kg of honey per colony per year.
- The combs of *A. cerana* colony are built parallel to each other and at uniform distance known as the “bee space”, which is respected between them.
- Brood comb consists of cells of two sizes: **smaller** for the worker brood and **larger** for the drone brood.
- The **queen cells** are built on the lower edge of the comb. They store honey in the upper part of their hive.

Since these bees have built their colonies in dark cavities, it enables bee keepers to keep them in specially constructed movable frame hives. Their behavioral pattern also insist the beekeepers to design these bee boxes in such a way that the super chamber or the honey chamber is in the upper part of the hive where these bees store honey which helps in easy honey extraction.

Ruttner (1988) classified *Apis cerana* into subspecies based on the living habitats and genetic diversity. These are *Apis cerana indica* and *Apis cerana cerana*. Both of these are found in India. The subspecies *Apis cerana indica* is again recognized into two morphotypes like “**hills bee**” (black coloured) and “**plains bee**” (yellow coloured).

Presently beekeeping with Indian bees is mostly done in south India and particularly in Kanyakumari district of Tamil Nadu, with more than 50,000 beekeepers involved.

#### **4. European Bee/Italian Bee (*Apis mellifera ligustica*)**

- ❖ Italian bee (*Apis mellifera ligustica*) is one of the sub species of *A.mellifera* and is not native to India and was introduced from Europe during the second half of 20th century.
- ❖ The introduction was primarily because the native Indian bee colonies were vanishing due to the attack of the Thai sacbrood virus.
- ❖ Presently they are well established in India and mostly present in northern India because of the rich flora such as mustard, sun flower, etc.
- ❖ They are also similar in habits to Indian bees, which build parallel combs in dark places and store honey at the upper portion of their colony.
- ❖ They are bigger than all other honeybees except *Apis dorsata*.
- ❖ They produce 25–40 kg of honey per colony per year.

The introduction of *A. mellifera* to India created problems such as the interspecies transmission of bee pests and diseases. But their inclusion can be recorded as success story as it created employment for many people in India with profitable income and also by the pollination service these bees done to Indian flora.

**For 3<sup>rd</sup> year hons. Students (SEC-A)**

**Sudeshna Ghoshal, Dept. of Zoology, VJRC.**