

## EGGS IN COMB CELLS OF THREE SPECIES OF INDIAN BEES

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Freshly laid eggs of *Apis florea* measured 0.416 mm  $\times$  1.675 mm, of *Apis cerana indica* 0.403 mm  $\times$  1.750 mm and *Apis dorsata*, 0.413 mm  $\times$  1.984 mm. Thus thickness of eggs of all species was very similar, but eggs of *A. dorsata* were the longest. The size and shape of eggs of all species changed during development. The eggs became smaller and slender. The thickness/length relation in one and three-day old eggs changed in *A. florea* from 1:4.03 to 1:4.42, in *A. cerana indica* from 1:4.36 to 1:4.78, and in *A. dorsata* from 1:4.80 to 1:4.83.

The eggs of each of the three species were deposited into comb cells, in different place at the bottom. The position of eggs of all three species were from the beginning very much inclined towards the bottom. All eggs were hanging in cells with the head end down, and the ventral side up and outside. This indicated that queens of all three species had to lay all eggs in one position. Observation of *A. cerana indica* queens showed that they were laying eggs in a position turning the thorax and head downwards.

Before hatching of larvae, air appeared in the tracheae of embryos and they started respiratory movements. Next embryos of all three species turned inside the eggs by 180° along the longitudinal axis of the egg. Thus, the ventral side of the embryos shifted on the dorsal concave side of the eggs. Now the embryos started to contract the ventral mus-

cles, and characteristic flexing movements of the eggs occurred. First, rupture in the chorion occurred on the ventral convex side of the egg which became now the dorsal side of the embryo.

Although embriokinesis was not described in *Apis mellifera*, there are some evidence that the same phenomenon occurs in this species too.

322

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