

# POLLEN WITHIN POLLEN—A STRANGE PHENOMENON IN MELITTOPALYNOLOGICAL STUDIES

In a study dealing with the analysis of pollen loads of *Apis florea* bee, from Ranga Reddy district, A. P., the authors have encountered numerous instances of acetolysed pollen of *Cocos nucifera* containing pollen of *Phoenix sylvestris*. Each pollen of *Cocos* showed 1-6 pollen of *Phoenix* (figs. 1-6). A similar phenomenon was also observed by Traverse (1986), where he reported the occurrence of 1-8 sapotaceous tricolporate pollen grains inside the pollen of *Scheelea* (Palmae) in an acetolysed pollen load of the honey bee, *Apis mellifera*. According to him, this phenomenon might have occurred either due to (i) the foraging bee inadvertently forcing the smaller pollen grains into the larger ones during foraging activity, or (ii) the invasion of the smaller pollen into the acetolysed hollow "pockets" of the larger pollen during centrifugation following acetolysis.

To find out exact reason for this strange phenomenon of smaller pollen getting literally embedded within the larger pollen, a critical examination of the pollen contents of numerous unacetolysed, unacetolysed and centrifuged as well as acetolysed and centrifuged pollen loads was carried out. The instances of pollen within pollen were encountered only in the acetolysed preparations. Pollen grains with contents intact do not show this phenomenon despite being exposed to centrifugation. The occurrence of this phenomenon only in preparations subjected to acetolysis and its absence in unacetolysed preparations clearly indicates that the bees were not at all instrumental in stuffing the larger pollen with smaller ones. Therefore, the invasion of smaller pollen into the larger pollen could have taken place only during centrifugation following acetolysis, which incidentally removes the contents of the pollen and makes them virtually empty shells.

Similarly, in the preparations of acetolysed squeezed and apiary honey samples of *Apis florea* and *Apis cerana* respectively, many pollen grains of *Cocos nucifera* were found containing 1-6 grains of *Phoenix sylvestris*. Further, embedded in each pollen

of *Borassus flabellifer* we have noted 1-6 grains of *Phoenix sylvestris* and *Eucalyptus globulus* or *Ageratum conyzoides* (figs. 7-9).

All the cases of pollen within pollen we have encountered only the fairly large monosulcate pollen of Palmae as the receptors. The monosulcate grains of both *Cocos nucifera* (29-40 × 45-65 μm) and *Borassus flabellifer* (25-35 × 48-66 μm) are considerably larger than those of *Phoenix sylvestris* (11.5-16 × 20-30 μm), *Ageratum conyzoides* (19-22 μm) and *Eucalyptus globulus* (20-24 μm).

One may, therefore, conclude that in pollen loads and honey samples possessing an admixture of large monosulcate, and smaller monosulcate and other pollen types, the smaller grains tend to get lodged within the larger ones during acetolysis technique and that the honey bees have nothing to do with this bizarre phenomenon.

## References

- Traverse, A. (1986). Would you believe? *Palynos*, 9 (2): 8.

## Explanation of Plate

### Plate 1

(All figures × 750)

- 1-6. *Cocos nucifera* pollen with *Phoenix sylvestris* grains.
7. *Borassus flabellifer* pollen with two *Phoenix sylvestris* and one *Ageratum conyzoides* grains.
- 8,9. *Borassus* pollen with *Phoenix* grains.

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