

# *Sesamum indicum* L., an important source of nectar and pollen for Rock bees (*Apis dorsata* F.) in Ranga Reddy District, A.P.

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Pollen analysis of five honey samples and 500 comb-pollen loads of Rock bees obtained during the month of August from Vikarabad and Dharoor mandals of Ranga Reddy District has brought to light the importance of *Sesamum indicum* L., a rain-fed crop, as the chief source of nectar and pollen for these bees.

**Key-words** – Melittopalynology, *Sesamum indicum* L. Chief forage source, Rock bees, Ranga Reddy District, A.P.

## INTRODUCTION

*SESAMUM INDICUM* L. (Pedaliaceae), an important oil-seed crop in various mandals of Ranga Reddy District, A.P. is generally cultivated as a rain-fed crop during Kharif season, either alone or mixed with maize, bajra, jawar, groundnut and redgram. Sesame flowers which are of medium size, obliquely campanulate and whitish are visited by honey bees both for their nectar and pollen.

It is intended to highlight the potential of *Sesamum* as a significant source of forage for Rock bees (*Apis dorsata*) in parts of Ranga Reddy District, based upon a melittopalynological study of the honey and comb-pollen loads of these honey bees.

## MATERIAL AND METHOD

This study is based upon five honey samples (squeezed) and 500 comb-pollen loads obtained during August 93 from five Rock bee combs from Vikarabad (AD-16) and Dharoor (AD-17 to 20) mandals.

To the extent possible the honey has been removed with fine droppers only from the honey storing portion of the comb and hence virtually represents pure honey. The comb-pollen loads, stacked neatly one above the other in a superimposed fashion in each pollen chamber (store) were removed carefully with arrow head needles.

The recovery of pollen types from honey and their quantification was carried out in accordance with the

procedure laid down by Louveaux *et al.* (1978). Small quantities of pollen from various parts of each comb load were studied in temporary mounts and the remaining load was subjected to acetolysis technique of Erdtman (1960). The comb-pollen loads were either of unifloral nature (with > 90% of a single pollen type in a count of 500 grains) or mixed.

## OBSERVATION

The nectar and pollen source for the honey bees is indicated by the pollen contents of the honeys and pollen loads respectively. Both these forage ingredients may be provided by the same plant or different plants. In general, the frequency percentages of various pollen types in a honey sample reflect upon the relative contribution of the nectar of these plants to that honey. Four of the five honey samples investigated, viz., AD-16 to 19 were found to be unifloral Sesame honeys with the pollen of this plant in predominant condition. *Eucalyptus* sp., *Arachis hypogaea*, *Memecylon edule* and *Albizia lebbek* were the other taxa with fair representation of their pollen (10% or above) in these honeys. Table 1 provides the details of the frequency classes and frequencies (%) of the various pollen types recovered from the honey samples. The 5th sample (AD-20) was found to be multifloral honey with no predominant pollen type. *Sesamum indicum* was, however, encountered as secondary pollen type along with the pollen of *Memecylon edule* and *Casuarina elliptica* in this sample. The

Table 1. Frequency classes and frequencies (%) of pollen types in honey samples.

Honey sample	Collection site	Pollen types
AD-16	Atheli of Vikarabad mandal	P - <i>Sesamum indicum</i> (78.33) S - Nil I - <i>Eucalyptus</i> sp. (10.0), <i>Leucaena leucocephala</i> (5.33) M- <i>Albizia lebbek</i> , <i>Pongamia pinnata</i> (each 2.0), Malvaceae type (1.67), <i>Cocos nucifera</i> (0.67)
AD-17	Milaram of Dharoor mandal	P - <i>Sesamum indicum</i> (79.67) S - Nil I - <i>Arachis hypogaea</i> (10.0), <i>Casearia elliptica</i> (6.67) M- <i>Lagerstroemia parviflora</i> (2.33), <i>Tribulus terrestris</i> , <i>Ageratum conyzoides</i> (each 0.67) A- <i>Cyperus rotundus</i> (1.33)
AD-18	Milaram of Dharoor mandal	P - <i>Sesamum indicum</i> (74.67) S - Nil I - <i>Arachis hypogaea</i> (11.0), <i>Casearia elliptica</i> (6.0), <i>Capparis zeylanica</i> (4.0) M- <i>Lagerstroemia parviflora</i> (1.33), <i>Eucalyptus</i> sp. (1.0), <i>Randia dumetorum</i> , <i>Tribulus terrestris</i> , <i>Ageratum conyzoides</i> (each 0.67) A- <i>Cyperus rotundus</i> (1.33)
AD-19	Kummaripalli of Dharoor mandal	P - <i>Sesamum indicum</i> (53.33) S - Nil I - <i>Memecylon edule</i> (11.0), <i>Albizia lebbek</i> (10.0), <i>Casearia elliptica</i> (7.67), <i>Capparis zeylanica</i> , <i>Tinospora cordifolia</i> , <i>Tridax procumbens</i> (each 3.0) M- <i>Mimosa rubicaulis</i> (1.67), <i>Pongamia pinnata</i> , <i>Lagerstroemia parviflora</i> , <i>Ottelia alismoides</i> , <i>Acacia nilotica</i> , <i>Eucalyptus</i> sp., <i>Lannea coromandelica</i> , <i>Delonix regia</i> , <i>Careya arborea</i> (each 0.67), Unknown pollen type (2.0) A- <i>Cyperus rotundus</i> (1.33)
AD-20	Kummaripalli of Dharoor mandal	P - Nil S - <i>Memecylon edule</i> (34.33), <i>Sesamum indicum</i> (22.33), <i>Casearia elliptica</i> (16.67) I - <i>Tinospora cordifolia</i> (6.33), <i>Tridax procumbens</i> (6.0), <i>Crataeva magna</i> (4.67) M- <i>Mimosa rubicaulis</i> (2.33), <i>Albizia lebbek</i> (1.67), <i>Capparis zeylanica</i> , <i>Helianthus annuus</i> (each 1.0), <i>Pongamia pinnata</i> , <i>Acacia nilotica</i> , <i>Careya arborea</i> (each 0.67), <i>Lannea coromandellica</i> , <i>Hyptis suaveolens</i> , <i>Ottelia alismoides</i> , <i>Erythrina indica</i> , <i>Evolvulus alsinoides</i> (each 0.33) A- <i>Cyperus rotundus</i> (1.0)

P : Predominant pollen type (> 45 %), S : Secondary pollen types (16-45%), I : Important minor pollen types (3-15 %), M : Minor pollen types (<3 %), A : Pollen types of Anemophilous taxa

important minor and minor pollen types recovered from these honeys reflect upon the generally encountered floristic elements of the agricultural tracts of the

Vikarabad and Dharoor mandals. The occurrence of the pollen of the anemophilous taxon, *Cyperus rotundus* albeit in negligible percentage, in some honey samples is

### Plate 1

Figures 1-4. Pollen types recorded from some of the unifloral comb-pollen loads.

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|------------------------------------|------------------------------------|
| 1. <i>Sesamum indicum</i> , x 60   | 3. <i>Sesamum indicum</i> , x 300  |
| 2. <i>Arachis hypogaea</i> , x 300 | 4. <i>Cyperus rotundus</i> , x 300 |

Figures 5-8. *Sesamum indicum* from honey sample AD-16, x 500



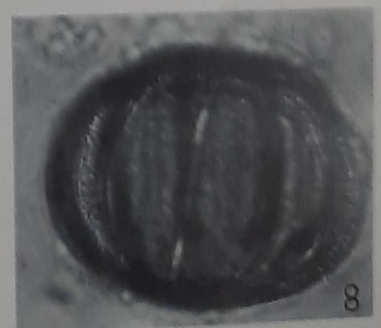
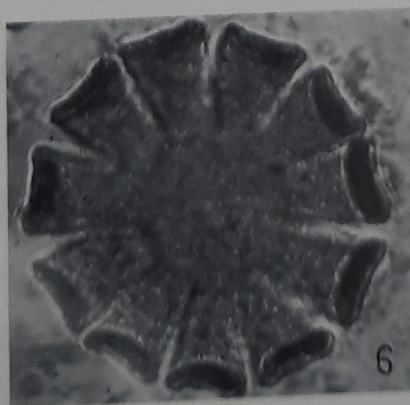
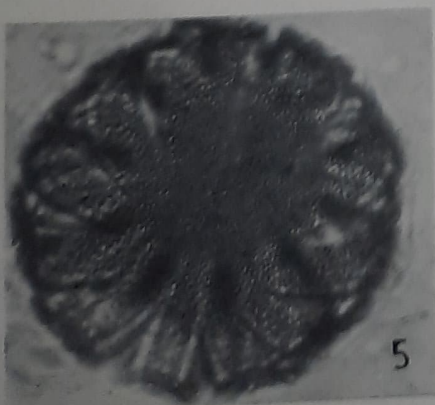
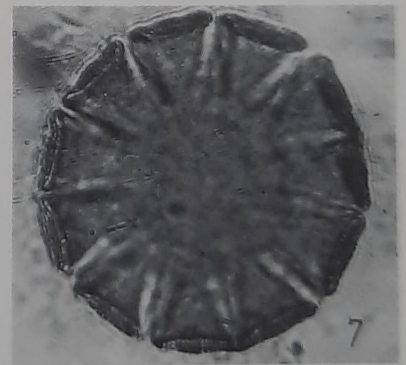
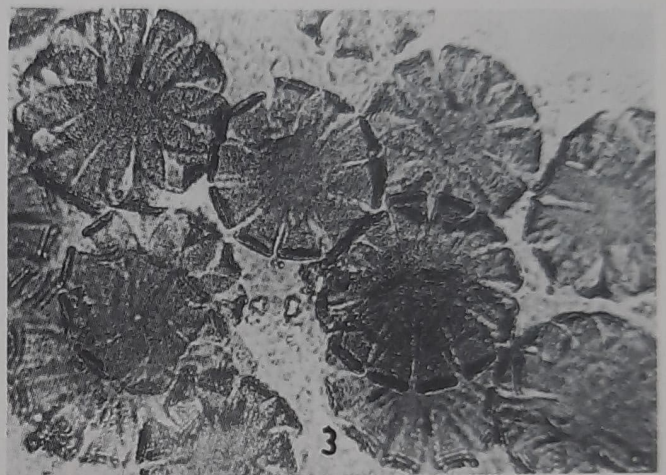
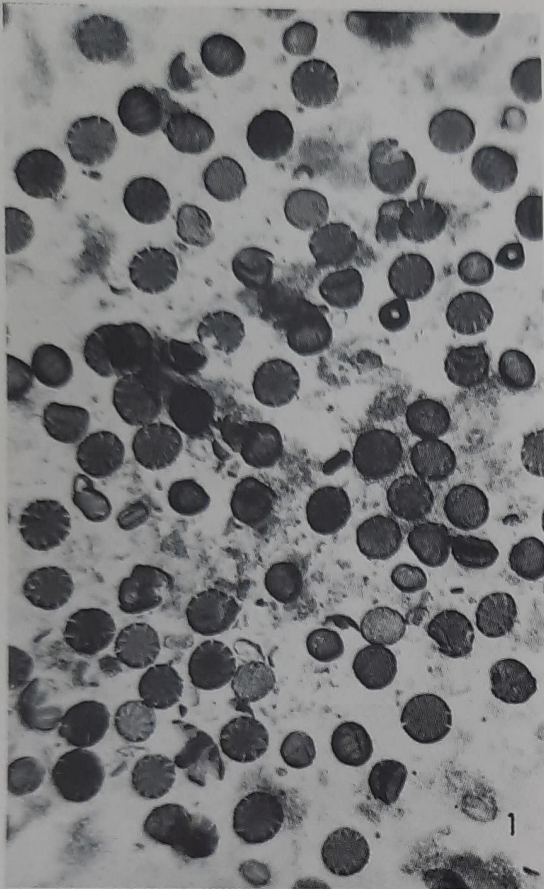


Plate 1