

POLLEN ANALYSIS OF EXTRACTED AND SQUEEZED HONEY OF HYDERABAD

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Abstract

The paper deals with a study of the pollen analysis of the extracted (apiary) and squeezed samples of honey collected from Hyderabad. The absolute pollen count of the extracted honey is 50,000 and that of the squeezed sample is 15,70,000. The honey samples studied showed no predominant pollen type. In the extracted honey, the pollen of Asteraceae and Papilionaceae represent the secondary pollen types and those of Cruciferae, Caesalpinaceae, Meliaceae and Rhamnaceae form the important minor types. The squeezed honey, however, showed the pollen of Compositae and Anacardiaceae as the secondary pollen types and those of Acanthaceae, Caesalpinaceae, and Umbelliferae, among the important minor pollen types.

Introduction

Melittopalynological investigations from India have been rather few and far between. Mention may particularly be made in this connection of the pollen analysis of Indian honeys by Sen and Banerjee (1956), Vishnu Mittre (1957), Nair (1964) and Seetalakshmi (1980). The information provided by these workers indicates that the commercial names given to the honeys are generally not corroborated by the pollen contents of the respective honeys. Deodikar and Thakar (1953), and Chaubal and Deodikar (1965) presented the pollen characters of some major honey sources of the Mahabaleshwar Hills in Western Ghats, along with the information on the characteristics of the important honeys of this area.

Material and method

Genuine extracted and squeezed honey samples were collected during September, 1982 and December, 1984 respectively in Hyderabad. For qualitative analysis about 5 cc of honey is diluted by 10 cc of water and centrifuged. To the resultant sediment, 5 cc of glacial acetic acid was added and the mixture was subjected to the traditional acetolysis technique.

The extracted honey is from the advanced tetraploid species, *Apis cerena* var. *indica* which tend to build multiple combs in areas with little or no exposure to light. The squeezed honey, on the other hand, is from the diploid species, *Apis dorsata* which build honey combs in exposed areas.

Observations

Physical analysis—The extracted honey sample is brownish red while the squeezed sample is blackish brown. The percentage of the solid contents obtained from Refractometer is 79.5% and 75.9 % in the extracted and squeezed samples respectively.

Pollen analysis—Both the samples of honey studied have yielded enough pollen contents. There is, however, no predominant pollen type either in the extracted or squeezed

Table 1—Physical properties and pollen analysis of honey samples

Nature of honey sample and locality	Colour	Total dissolved solids	Absolute pollen count	Predominant pollen (45% and above)	Secondary pollen type (16-45%)	Important minor pollen type (3-15%)	Minor pollen type (less than 3%)
Extracted sample : Shivarampally area, Hyderabad	Brownish red	79.5%	50,000	Nil	Aster altaicus (18%)	Brassica nigra (15.3%)	Lagerstroemia parviflora (2.4%)
					Ageratum conyzoides (17.6%)	Cassia sp. (10.2%)	Amaranthaceae (1.6%)
					Delbergia latifolia (20.3%)	Azadirachta indica (5.1%)	Dendrophthoe falcata (1.6%)
						Zizyphus jujuba (5.1%)	Borassus flabelifer (1.5%)
						Papilionaceae (0.9%)	
Squeezed sample : Kishan Bagh area, Hyderabad	Blackish brown	75.9%	15,70,000	Nil	Aster altaicus (19%)	Justicia procumbens (14%)	Sapindaceae (2.7%)
					Ageratum conyzoides (24%)	Cassia sp. (3%)	Dalbergia latifolia (1.9%)
					Mangifera indica (25%)	Delonix regia (3%)	Amaranthaceae (1.9%)
						Coriandrum sativum (4.6%)	Albizia lebbede (0.9%)

samples. In the extracted honey *Aster altaicus* *Ageratum conyzoides* (Compositae) and *Dalbergia latifolia* (Papilionaceae) are the secondary pollen types (16-45%). The important minor pollen types (3-15%) of this honey are *Brassica* (nigra), (Cruciferae), *Cassia* sp. (Caesalpiniaceae), *Azadirachta indica* (Meliaceae) and *Zizyphus jujuba* (Rhamnaceae). The minor pollen types ϕ (represented by less than 3%) of the extracted honey are *Lagerstroemia parviflora* (Lythraceae), Amaranthaceae, *Dendrophthoe falcata* (Loranthaceae), *Borassus flabellifer* (Palmae), and Papilionaceae (*Erythrina* sp.). In the squeezed sample, however, *Aster altaicus*, *Ageratum conyzoides* and *Mangifera indica* (Anacardiaceae) are the secondary pollen types, and *Justicia procumbens* (Acanthaceae), *Cassia* sp., *Delonix regia* (Caesalpiniaceae) and *Coriandrum sativum* (Umbelliferae) are the important minor pollen types. The minor pollen types of the squeezed honey are Sapindaceae, *Dalbergia latifolia*, Amaranthaceae and Mimosoidae (*Albizia lebbek*). Figs. 1-14 of Plate 1 are some of the important pollen types recovered by us. Table I summarises the physical properties and the pollen analysis of the two samples of honey studied by us.

The absolute pollen count in terms of number of grains per ten grams of honey is 50,000 in the extracted honey and 15,70,000 in the squeezed sample. According to the classification of I.C.B.B., the former is referable to Group II and the latter to Group V. The squeezed honey does not involve any machine extraction as the combs are squeezed crudely (honey containing part and the Pollen Pockets) through muslin cloth to obtain the honey. Hence the squeezed honey contains large proportion of pollen and extraneous material. The apiary honeys are extracted several times in the flow season from only the honey containing parts of the combs, hence they contain relatively less proportion of Pollen and extraneous material. (Phadke, 1968). A more extensive work of similar kind involving many samples of the extracted and squeezed honey from different areas of Hyderabad is in progress.

Acknowledgements

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Explanation of Plate

Plate 1

1. *Borassus flabellifer*. × 500
2. *Coriandrum sativum*. × 1000
3. *Mangifera indica*, × 500
4. *Erythrina* sp. × 500
5. *Delonix regia*. × 500
6. *Lagerstroemia parviflora*. × 1000
7. *Cassia* sp. × 1000
8. *Justicia procumbens*. × 1000
9. *Zizyphus jujuba*. × 500
10. *Aster altaicus*. × 500
11. *Amaranthaceae* pollen. × 1000
12. *Azadirachta indica*. × 1000
13. *Ageratum conyzoides*. × 1000
14. *Albizia lebbek*. × 500.



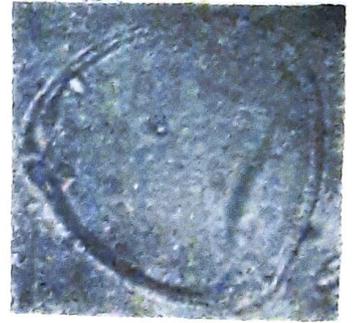
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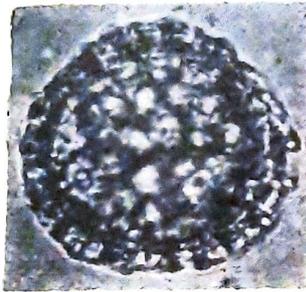
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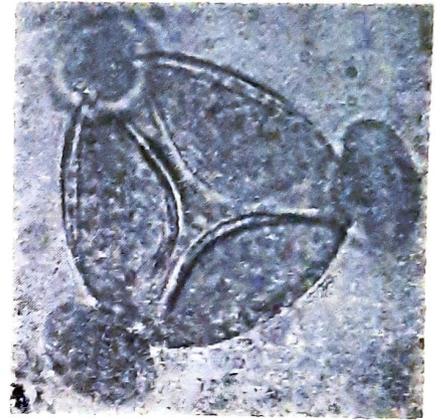
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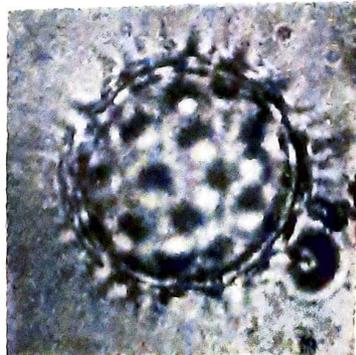
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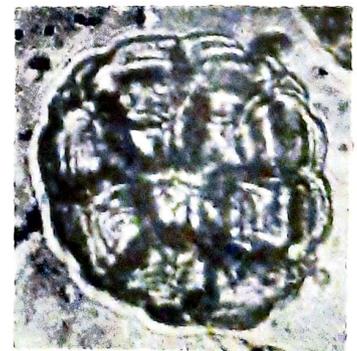
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