J. Indian Inst. Sci., Jan.–Feb. 1991, **71**, 25–34.
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Melittopalynology of the agricultural tracts in Guntur district, Andhra Pradesh

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Received on May 31, 1990; Revised on November 13, 1990

Abstract

The paper deals with the study of pollen analysis of 12 extracted (apiary) honey samples from agricultural areas of Tenali, Bapatla and Repalle mandals, Guntur district, Andhra Pradesh. Seven of the samples were found to be unifloral and five multifloral honeys. *Mimosa pudica* (53.6%, 49.8% and 49.6%) formed the predominant pollen type in three samples while *Sapindus emarginatus* (70.16% and 63.0%) in two samples; *Capsicum frutescens* (60.2%) and *Prosopis juliflora* 158.2%) represent the predominant pollen types in one sample each. A total of 66 pollen types referable to 38 families have been recorded in these honey samples. *Cucumis* sp., *Phoenix sylvestris*, *Hygrophila* sp., *Sopubia delphinifolia*, *Borassus flabellifer*, *Coriandrum sativum*, *Zizyphus jujuba*, *Mangifera indica*, Urticaceae, *Cocos nucifera*, *Terminalia* sp., *Brassica nigra*, *Cleome gynandra*, *Phyla nodiflora*, *Momordica charantia*, *Ricinus communis*, *Tridax procumbens* and *Citrus limon* are significant pollen types of these honeys other than the predominant ones.

Key words: Pollen analysis, extracted honeys, Guntur district.

1. Introduction

Melittopalynological studies are generally designed to promote healthy growth and management of bee-keeping (apiary) industry. One of the prerequisites for the production of honey in any area is the availability of abundant nectar and pollen source from either natural or cultivated communities of plants. The pollen spectrum of honey of any region is a function of the foraging activity of bees for nectar.

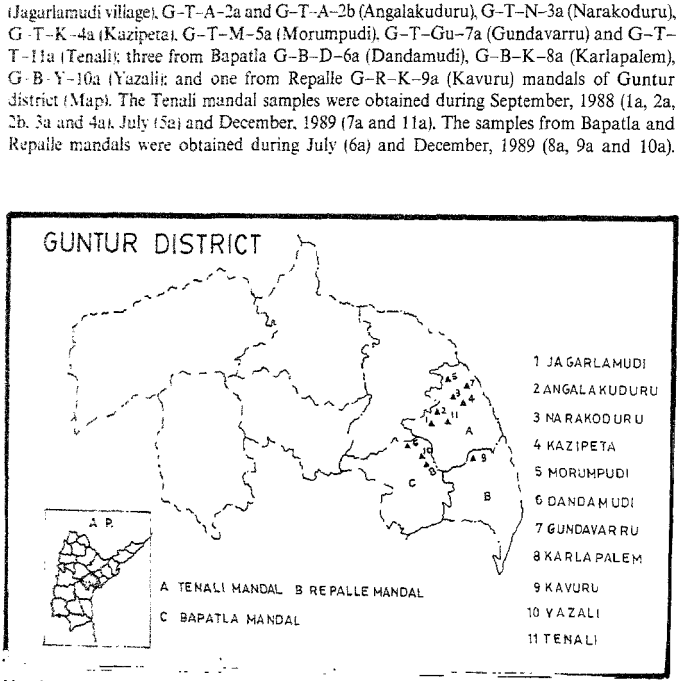
Only marginal interest has been evinced by palynologists till recently in undertaking melittopalynological studies of honeys from Andhra Pradesh[1,2]. The last few years, however, witnessed a renewed spurt and interest in the pollen analysis research of honeys of Andhra Pradesh. Jhansi and Ramanujam[3–5] provided information on the pollen contents of a number of uni- and multifloral honeys from Guntur, Rajahmundry, Karimnagar, Hyderabad, Visakhapatnam and Nalgonda districts. Kalpana and Ramanujam[6] investigated melittopalynology of three unifloral honeys of *Apis florea* from Nawabpet mandal of Ranga Reddy district and highlighted the importance of *Carum copticum*, *Coriandrum sativum* and *Guizotia*

abyssinica as the chief nectar sources of this mandal during the winter season. More recently, Kalpana *et al.* provided a qualitative and quantitative analysis of the pollen contents of two honey samples of *Apis florea* and one of *A. cerana* from the Osmania University area of Hyderabad.

The present contribution documents a critical analysis of 12 samples of extracted (apiary) honey from Tenali and its adjoining Bapatla and Repalle mandals of Guntur district in Andhra Pradesh. The aim of this study is to recognise the chief nectar sources for the Indian hive bee in the agricultural tracts of this district.

2. Material and methods

The material comprises 12 extracted honey samples, *viz.*, eight from Tenali G–T–J–1a (Jagarlamudi village), G–T–A–2a and G–T–A–2b (Angalakuduru), G–T–N–3a (Narakoduru), G–T–K–4a (Kazipeta), G–T–M–5a (Morumpudi), G–T–Gu–7a (Gundavarru) and G–T–T–11a (Tenali); three from Bapatla G–B–D–6a (Dandamudi), G–B–K–8a (Karlapalem), G–B–Y–10a (Yazali); and one from Repalle G–R–K–9a (Kavuru) mandals of Guntur district (Map). The Tenali mandal samples were obtained during September, 1988 (1a, 2a, 2b, 3a and 4a), July (5a) and December, 1989 (7a and 11a). The samples from Bapatla and Repalle mandals were obtained during July (6a) and December, 1989 (8a, 9a and 10a).



Map showing various localities and mandals of Guntur district from which the honey samples were obtained.

While 6a and 10a samples are lemon yellow and pale yellow, the rest of the honey samples vary from light to dark amber.

One ml of honey was diluted with 10 ml of water and centrifuged. The resultant sediment was treated with 5 ml glacial acetic acid and subjected to acetolysis technique[8]. Three to four slides prepared for each sample were studied by critical scanning under the microscope. The pollen types recorded were identified with the help of reference slide collection and relevant literature.

For determining the frequency classes, 300 grains were counted and the recovered pollen types were placed under four frequency classes: predominant pollen type (> 45%), secondary pollen types (16–45%), important minor pollen types (3–15%) and minor pollen types (< 3%)[9]. For determining the frequencies (in %) of individual pollen grains, 1200 grains were counted.

The ratio of honeydew elements (HDE) *versus* total number of nectariferous pollen types in each sample was obtained by the study of the unacetolysed honeys. The method recommended by Suryanarayana *et al*[9] was followed for determining the absolute pollen count (APC) of the honey samples which were referred to various groups in accordance with the grading parameter suggested by Louveaux *et al*[10]. Pollen spectra of the honey samples were constructed based upon the frequencies of the pollen types in each sample.

3. Observations

Twelve honey samples palynologically analysed were found to be both uni- and multifloral. The honey samples from Jagarlamudi (G–T–J–1a), Angalakuduru (G–T–A–2a and 2b), Narakoduru (G–T–N–3a), Kazipeta (G–T–K–4a), Morumpudi (G–T–M–5a), Gundavarru (G–T–Gu–7a) and Tenali (G–T–T–11a) of Tenali mandal showed *Mimosa pudica* (3 samples – G–T–A–2a, 2b and G–T–N–3a) and *Sapindus emarginatus* (1 sample – G–T–Gu–7a) as the predominant pollen types. The remaining four samples (G–T–J–1a, G–T–K–4a, G–T–M–5a and G–T–T–11a) were found to be of multifloral nature. The other significant pollen types of this mandal include *Hygrophila* sp., *Mangifera indica*, *Coriandrum sativum*, *Phoenix sylvestris*, *Borassus flabellifer*, *Zizyphus jujuba*, *Sopubia delphinifolia*, *Cocos nucifera*, Urticaceae, *Terminalia* sp., *Brassica nigra*, *Cleome gynandra*, *Phyla nodiflora*, *Citrus limon* and *Capsicum frutescens*.

Of the three samples from Dandamudi (G–B–D–6a), Karlapalem (G–B–K–8a) and Yazali (G–B–Y–10a) of Bapatla mandal, two were found to be unifloral and one multifloral. *Capsicum frutescens* (G–B–K–8a) and *Prosopis juliflora* (G–B–Y–10a) formed the predominant pollen types in the two unifloral honeys. The other significant pollen types encountered are *Mangifera indica*, *Momordica charantia*, *Cucumis* sp., *Borassus flabellifer*, *Cocos nucifera*, *Sapindus emarginatus*, *Ricinus communis* and *Phoenix sylvestris*.

The honey sample from Kavuru village (G–R–K–9a) of Repalle mandal is distinguished by the presence of *Sapindus emarginatus* (63.0%) as the predominant pollen type. The other important sources of nectar of this area in December are *Capsicum frutescens*, *Phoenix sylvestris*, *Cocos nucifera* and *Cleome gynandra*.

Table I
Frequency classes and frequencies (%) of pollen types

Honey sample no.	Pollen types
G-T-B-1a	S – *Phoenix sylvestris* (23.4), *Hygrophila* sp. (20.9) I – *Sopubia delphiniifolia* (15.0), *Borassus flabellifer* (7.5), *Mangifera indica* (6.5), *Ziziphus jujuba* (6.1), *Coriandrum sativum* (4.5) M – *Psidium guajava* (2.5), *Cleome gynandra* (1.8), *Ageratum conyzoides* (1.5), *Capsicum frutescens* (1.1), *Cocos nucifera* (1.0), *Citrus limon* (1.0) and Br, Al, Le, Sph, Ai, Mo, Eu, Ve, Ch, Ru, Un (each < 1%); NMP – *Oryza sativa* (0.3).
G-T-A-2a	P – *Mimosa pudica* (53.6) I – Urticaceae (15.0), *Cocos nucifera* (13.3), *Borassus flabellifer* (4.0), *Sopubia delphiniifolia* (3.6) M – *Terminalia* sp. (2.3), *Dichrostachys cinerea* (2.0) and Coc, Ol, Br, Sa, Tr, Sy, Cap, Ps, Un (each < 1%)
G-T-A-2b	P – *Mimosa pudica* (49.8) S – Urticaceae (23.7) I – *Sopubia delphiniifolia* (6.3), *Cocos nucifera* (4.5), *Terminalia* sp. (4.0) M – *Phoenix sylvestris* (2.3), *Dichrostachys cinerea* (2.1), *Mangifera indica* (1.7), *Borassus flabellifer* (1.1) and Le, Zi, Ol, Pr, Az, Ps, Sph, Al, Ce, Ag, Cr, Ph, Un (each < 1%); NMP – *Oryza sativa* (0.3)
G-T-N-3a	P – *Mimosa pudica* (49.6) S – Urticaceae (20.2) I – *Sopubia delphiniifolia* (10.0), *Borassus flabellifer* (3.3), *Cocos nucifera* (3.0) M – *Ziziphus jujuba* (2.3), *Hygrophila* sp. (1.6), *Dischrostachys cinerea* (1.3), *Coriandrum sativum* (1.2), *Sphaeranthus indicus* (1.0), *Justicia procumbens* (1.0) and Ma, Br, Cc, Cl, Az, Cap, Ve, Ta, Te, Lag, Ph, Un (each < 1%); NMP – *Casuarina equisetifolia* (0.6), *Oryza sativa* (0.3).
G-T-K-4a	S – *Hygrophila* sp. (37.6) I – *Brassica nigra* (15.0), *Phoenix sylvestris* (13.4), *Borassus flabellifer* (7.0), *Ziziphus jujuba* (4.3), *Coriandrum sativum* (3.3), *Capsicum frutescens* (3.0) M – *Cocos nucifera* (2.6), *Leucas aspera* (2.0), *Mangifera indica* (1.3), *Psidium guajava* (1.3), *Cucumis* sp. (1.0), *Azadirachta indica* (1.0), *Chrozophora* sp. (1.0) and Ci, Ag, Ach, Tr, Mo, Al, Mi, So, Un (each < 1%); NMP – *Oryza sativa* (1.9), *Holoptelea integrifolia* (0.3).
G-T-M-5a	S – *Phoenix sylvestris* (34.6) I – *Cleome gynandra* (11.0), *Capsicum frutescens* (8.6), *Citrus limon* (8.6), *Borassus flabellifer* (7.5) *Phyla nodiflora* (6.5), *Cocos nucifera* (6.3), *Brassica nigra* (4.6) M – *Mangifera indica* (1.6), *Mimosa rubicaulis* (1.6), *Hygrophila* sp. (1.3), *Albizia lebbeck* (1.0) and So, Ps, Di, Le, Ag, Sph, Eu, Az, Cu, De, Sp, Un (each < 1%); NMP – *Casuarina equisetifolia* (0.5).
G-B-D-6a	S – *Cucumis* sp. (34.4), *Momordica charantia* (27.0), *Borassus flabellifer* (21.7) I – *Cocos nucifera* (4.0), *Mangifera indica* (3.3) M – *Brassica nigra* (2.5), *Allium cepa* (2.1), *Ageratum conyzoides* (1.0), *Chrozophora* sp. (1.0) and Ci, So, Pe, Cr, Le, Un (each < 1%); NMP – *Oryza sativa* (0.3).
G-T-Gu-7a	P – *Sapindus emarginatus* (70.2) I – *Phoenix sylvestris* (4.6), *Borassus flabellifer* (3.4) M – *Capsicum frutescens* (2.8), *Cleome gynandra* (1.7), *Celosia argentea* (1.7), *Crotalaria juncea* (1.7), *Ricinus communis* (1.7), *Cocos nucifera* (1.0), *Hygrophila* sp. (1.0), *Phyla nodiflora* (1.0) and Alb, Ol, Pr, Sa, As, Sph, So, Br, Eu, Mi, Mo, Caj, Bo, Ai, Ch; NMP – *Oryza sativa* (0.3), *Cyperus* sp. (0.3).

Table I (contd)

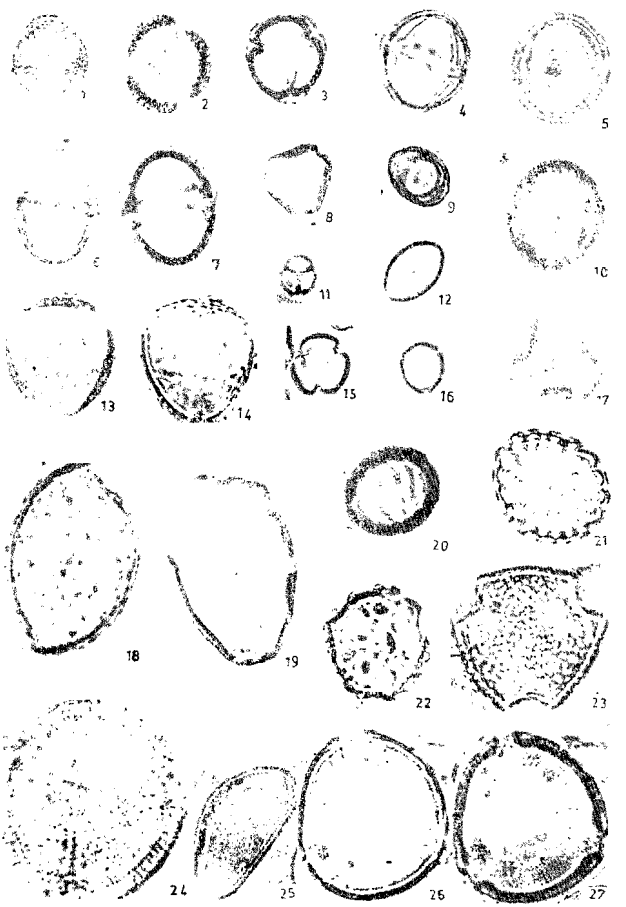
Honey sample no.	Pollen types
G–B–K–8a	P – *Capsicum frutescens* (60.2) I – *Momordica charantia* (6.8), *Prosopis juliflora* (5.9), *Borassus flabellifer* (5.8), *Ricinus communis* (4.1), *Sapindus emarginatus* (3.4) M – *Cajanus cajan* (1.4), *Cucumis* sp. (1.3), *Celosia argentea* (1.2), *Achyranthus aspera* (1.2) and Co, Ci, Tr, Ve, Eu, Br, Sph, Al, Le, Ac, Po, Ju, Ru, Cr, Un (each $< 1\%$); NMP – *Oryza sativa* (2.5), *Cyperus* sp. (0.1).
G–R–K–9a	P – *Sapindus emarginatus* (63.0) I – *Cleome gynandra* (7.8), *Leucanea leucocephala* (6.6), *Capsicum frutescens* (6.3), *Phoenix* sylvestris (4.6), *Cocos nucifera* (3.0) M – *Eucalyptus globulus* (2.8), *Borassus flabellifer* (1.3), *Tridax procumbens* (1.3), *Prosopis juliflora* (1.3) and Hy, Al, Mi, Cu, Mo, Coc, Ri, Ag, Bor, Un (each $< 1\%$).
G–B–Y–10a	P – *Prosopis juliflora* (58.2) I – *Phoenix sylvestris* (15.0), *Sapindus emarginatus* (6.5), *Borassus flabellifer* (4.5), *Capsicum frutescens* (4.5) M – *Momordica charantia* (2.5), *Cucumis* sp. (2.0), *Ricinus communis* (1.2), and Ach, Eu, Hy, Ce, Ru, Alb, Ac, Le, Co, Un (each $< 1\%$); NMP – *Oryza sativa* (0.4).
G–T–T–11a	S – *Capsicum frutescens* (28.0), *Phoenix sylvestris* (19.3) I – *Mimosa pudica* (13.0), *Prosopis juliflora* (7.3), *Ricinus communis* (10.0), *Tridax procumbens* (4.3) M – *Hygrophila* sp. (2.3), *Ailanthus excelsa* (2.0), *Brassica nigra* (2.0), *Eucalyptus globulus* (1.6) and Ci, Mor, Coc, Ach, Bo, Sap, Ab, As, Ru, Ma, Ce, Th, Cr, Ev, Al, Co, Ci, Le, Par (each $< 1\%$); NMP – *Oryza sativa* (0.3), *Casuarina equisetifolia* (0.3).

P – Predominant pollen type ($> 45\%$); M – Minor pollen type ($< 3\%$); S – Secondary pollen type ($16–45\%$); NMP – Non-melliferous pollen type; I – Important minor pollen type ($3–15\%$).

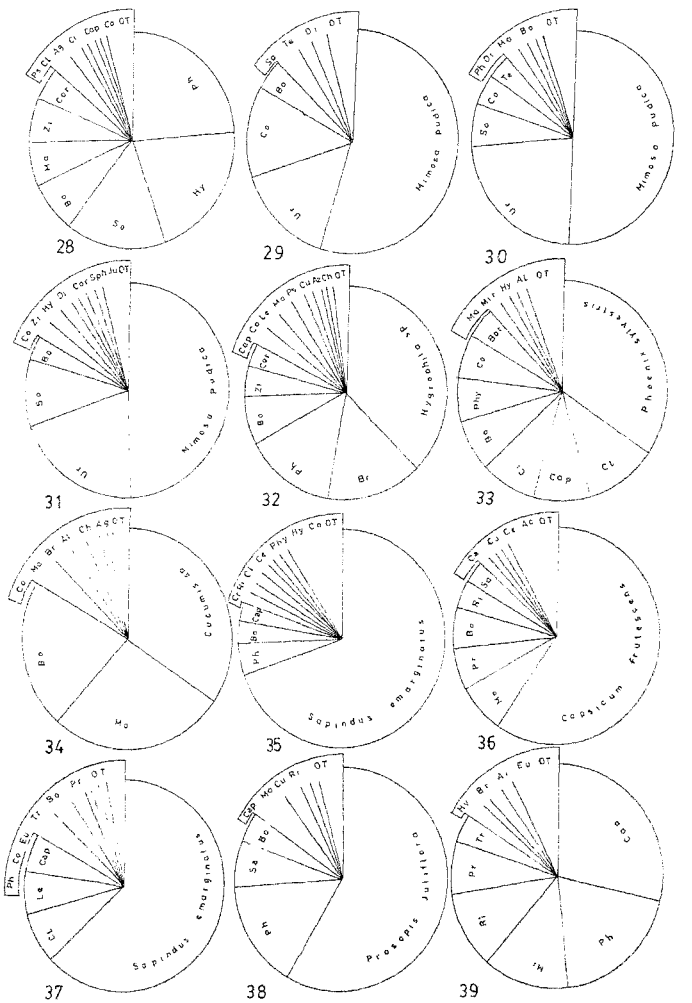
Abbreviations for pollen types less than 1%

Ab – *Abutilon* sp., Ac – *Acacia* sp., Ach – *Achyranthus aspera*, Ai – *Ailanthus excelsa*, Al – *Allium cepa*, Alb – *Albizia lebbeck*, As – *Asteracantha longifolia*, Az – *Azadirachta indica*, Br – *Brassica nigra*, Bo – *Borassus flabellifer*, Bor – *Borreria hispida*, Cap – *Capsicum frutescens*, Caj – *Cajanus cajan*, Ce – *Celosia argentea*, Ci – *Citrus limon*, Cl – *Cleome gynandra*, Ch – *Chenopodium album*, Cr – *Croton bonplandianum*, Co – *Cocos nucifera*, Coc – *Coccinia indica*, Cu – *Cucumis* sp., De – *Delonix regia*, Di – *Dichrostachys cinerea*, Ev – *Evolvulus alsinoides*, Eu – *Eucalyptus globulus*, Hy – *Hygrophila* sp., Ju – *Justicia procumbens*, Lag – *Lagerstroemia-flos-reginae*, Le – *Leucanea leucocephala*, Ma – *Mangifera indica*, Mi – *Mimosa rubicaulis*, Mo – *Momordica charantia*, Mor – *Moringa oleifera*, Ol – *Oldenlandia umbellata*, Par – *Parkinsonia aculeata*, Pe – *Peltophorum ferrugineum*, Po – *Portulaca* sp., Pr – *Prosopis juliflora*, Ph – *Phoenix sylvestris*, Ps – *Psidium guajava*, Ri – *Ricinus communis*, Ru – *Rungia repens*, Sa – *Salvia* sp, Sap – *Sapindus emarginatus*, So – *Sopubia delphinifolia*, Sp – *Spathodea companulata*, Sph – *Sphaeranthus indicus*, Sy – *Syzygium cumini*, Ta – *Tamarindus indica*, Te – *Terminalia* sp, Th – *Thespesia populnifolia*, Tr – *Tridax procumbens*, Un – Unknown pollen types, Ve – *Vernonia cinerea*, Zi – *Zizyphus jujuba*.

Table I provides detailed information on all the four frequency classes and frequencies of the pollen types recorded from each sample. Altogether, 66 pollen types (38 families) were recorded of which 62 were from nectariferous (entomophilous) plants and four from non-nectariferous (anemophilous) plants. A maximum of 28 pollen types were encountered in Tenali (G–T–T–11a) sample and a minimum of 14 pollen types in Dandamudi (G–B–D–6a) sample. Figures 1–27 show some of the significant pollen types recovered



FIGS 1–27. Photomicrographs of significant pollen types recorded from samples of Guntur district (all figs × 800). 1 and 2. *Brassica nigra*; 3 and 4. *Capsicum frutescens*; 5 and 10. *Citrus limon*; 6 and 7. *Phyla nodiflora*; 8 and 9. *Sapindus emarginatus*; 11. *Mimosa pudica*; 12. *Phoenix sylvestris*; 13 and 14. *Prosopis juliflora*; 15. *Cleome gynandra*; 16. Urticaceae; 17. *Eucalyptus globulus*; 18. *Borassus flabellifer*; 19. *Cocos nucifera*; 20 and 21. *Hygrophila* sp.; 22. *Dicliptera chinensis*; 23. *Cajanus cajan*; 24. *Momordica charantia*; 25. *Allium cepa*; 26 and 27. *Cucumis* sp.



FIGS 28–39. Pollen spectra of the honey samples studied. 28. Sample G–T–J–1a, 29. Sample G–T–A–2a, 30. Sample G–T–A–2b, 31. Sample G–T–N–3a, 32. Sample G–T–K–4a, 33. Sample G–T–M–5a, 34. Sample G–B–D–6a, 35. Sample G–T–Gu–7a, 36. Sample G–B–K–8a, 37. Sample G–R–K–9a, 38. Sample G–B–Y–10a, 39. Sample G–T–T–11a.

Ac – *Acacia* sp., Ag – *Ageratum conyzoides*, Ai – *Ailanthus excelsa*, Al – *Allium cepa*, Az – *Azadirachta indica*, Bo – *Borassus flabellifer*, Br – *Brassica nigra*, Ca – *Cajanus cajan*, Co – *Cocos nucifera*, Ci – *Citrus limon*, Cap – *Capsicum frutescens*, Ce – *Celosia argentea*, Cor – *Coriandrum sativum*, Cu – *Cucumis* sp., Ch – *Chrozophora* sp., Cl – *Cleome gynandra*, Cr – *Crotalaria juncea*, Di – *Dichrostachys cinerea*, Eu – *Eucalyptus globulus*, Hy – *Hygrophila* sp., Ju – *Justicia procumbens*, Le – *Leucas aspera*, Ma – *Mangifera indica*, Mo – *Momordica charantia*, Mi – *Mimosa pudica*, Mir – *Mimosa rubicaulis*, Ot – Other pollen types (below 1%) Ps – *Psidium guajava*, Ph – *Phoenix sylvestris*, Pr – *Prosopis juliflora*, Phy – *Phyla nodiflora*, Ri – *Ricinus communis*, Sa – *Sapindus emarginatus*, So – *Sopubia delphinifolia*, Sph – *Sphaeranthus indicus*, Tr – *Tridax procumbens*, Te – *Terminalia* sp., Ur – Urticaceae, Zi – *Zizyphus jujuba*.

from honey samples studied by us. Figures 28–39 represent the pollen spectra of the honey samples studied.

A few anemophilous pollen types referable to *Oryza sativa*, *Cyperus* sp., *Casuarina equisetifolia* and *Holoptelea integrifolia* were also encountered in some of the honey samples. *Oryza sativa* pollen grains were recovered from all the samples except in three (G–T–A–2a, G–T–M–5a and G–R–K–9a) and their frequencies ranged from 1.18 to 2.55%, while *Cyperus* sp. was present in two samples, *viz*., G–B–D–6a and G–T–Gu–7a and its percentage ranged from 0.1 to 0.3%. Samples G–T–M–3a and G–T–T–11a showed the pollen grains of *Casuarina equisetifolia* whose frequencies ranged from 0.3 to 0.6%. Sample G–T–K–4a showed 0.3% of *Holoptelea integrifolia* pollen. All these four anemophilous taxa provide reliable pollen source to the honey bees and the occurrence of their pollen in honeys in meagre quantities could be due to inadvertent contamination of the honey storing part of the hive by the bees themselves.

Honeydew elements (fungal spores, hyphae, algal filaments) though encountered in all the samples studied, were, however, in very negligible proportion and could be categorised as 'practically none', the ratio of honeydew elements to the total pollen grains of melliferous plants (HDE P) being less than 0.09.

The absolute pollen count in terms of the number of grains per 10 grams of honey in six samples (G–T–J–1a, G–T–A–2a, G–T–N–3a, G–T–K–4a, G–T–M–5a and G–B–D–6a) ranged from 60,000–1,00,000 (Group II), in four samples (G–T–A–2b, G–B–K–8a, G–T–T–11a and G–B–Y–10a) 2,00,000–5,00,000 (Group III) and in two samples (G–T–Gu–7a and G–R–K–9a) 11,00,000–12,00,000 (Group V).

4. Discussion

The pollen types recovered from the honey samples of Tenali, Bapatla and Repalle mandals of the Guntur district, mostly originated from cultivated and economically important plants. These include *Capsicum frutescens*, *Coccinia indica*, *Momordica charantia*, *Cucumis* sp., *Crotalaria juncea*, *Brassica nigra*, *Allium cepa*, *Citrus limon*, *Cajanus cajan*, *Sapindus emarginatus*, *Mangifera indica*, *Cocos nucifera*, *Psidium guajava*, *Phoenix sylvestris*, *Borassus flabellifer*, *Eucalyptus globulus*, *Moringa oleifera* and *Zizyphus jujuba*.

Mimosa pudica, an undershrub seen very commonly in open patches in many localities, appears to be the chief source of nectar for the bees during September around Angalakuduru and Narakoduru villages of Tenali mandal. *Capsicum frutescens*, cultivated on a large scale

Table II
Similarity Index (S) between pairs of honey samples from Tenali mandal

Sl no	Pairs of samples	No. of pollen types in the samples	No. of pollen types common to both the samples	Similarity Index
1	G–T–A–2a and G–T–A–2b	16 23	9 (*Mimosa pudica*, Urticaceae, *Cocos nucifera*, *Borassus flabellifer*, *Terminalia* sp., *Sopubia delphinifolia*, *Dichrostachys cinerea*, *Psidium guajava* and *Oldenlandia umbellata*).	$2 \times 9/16 + 23 = 0.46$
2.	G–T–A–2a and G–T–N–3a	16 22	9 (*Mimosa pudica*, Urticaceae, *Cocos nucifera*, *Borassus flabellifer*, *Terminalia* sp., *Sopubia delphinifolia*, *Dichrostachys cinerea*, *Brassica nigra* and *Cortandrum sativum*).	$2 \times 9/16 + 22 = 0.47$
3	G–T–A–2b and G–T–N–3a	23 22	12 (*Mimosa pudica*, Urticaceae, *Cocos nucifera*, *Borassus flabellifer*, *Terminalia* sp., *Sopubia delphinifolia*, *Dichrostachys cinerea*, *Zizyphus jujuba*, *Sphaeranthus indicus*, *Celosia argentea*, *Phoenix sylvestris* and *Mangifera indica*).	$2 \times 12/23 + 22 = 0.53$

as a cash crop throughout the district, served as a significant nectar source in some areas. *Sapindus emarginatus* constituted important source of nectar during December in some areas of Tenali and Repalle mandals. *Prosopis juliflora* appears to provide important nectar source in Yazali village area of Bapatla mandal during December.

The degree of similarity between different pairs of combination of the three honey samples from Angalakuduru (G–T–A–2a and G–T–A–2b), and Narakoduru (G–T–N–3a) villages, all with *Mimosa pudica* as the predominant pollen type can be quantified with the help of similarity index (S) calculated by using the formula $S = 2c/a + b$, where c is the number of pollen types common in two samples and a and b represent the total pollen types recorded from each sample. The similarity index between three possible pairs of honey samples was found to be 0.46 (G–T–A–2a and G–T–A–2b), 0.47 (G–T–A–2a and G–T–N–3a) and 0.53 (G–T–A–2b and G–T–N–3a) (Table II). The similarity index of less than 0.5 indicates low degree of similarity and that above it to high degree of similarity. Despite the fact that all the above three honey samples are unifloral for *Mimosa pudica*, they exhibit only marginal degree of similarity.

In addition to the earlier record of *Asteracantha* and *Borassus* unifloral honeys from Dandamudi and Tenali[3], the present analysis of the honey samples from Tenali, Bapatla and Repalle mandals bring to light unifloral honeys of *Mimosa pudica*, *Sapindus emarginatus*, *Capsicum frutescens* and *Prosopis juliflora* in Guntur district.

Acknowledgements

We thank Shri K. Venkateswara Rao, President, A.P. State Bee-keepers Association, Ithanagar, Tenali, for the supply of honey samples.

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