



Bee Forage Plants of Nagpur District of Maharashtra State, (India)

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Abstract:

59 common species of flowering plants constituting bee forage plants of Nagpur district of Maharashtra State have been presented on the basis of pollen morphology along with a note, in each case, as to their food utility to the bees by way nectar or pollen or both. Importance of such studies has been discussed.

Introduction:

Nagpur, one of the districts of Maharashtra State lies between 20° 35' and 21° 44' North latitude and 78° 15' 79° 40' East longitude bounded on the North by the Chhindwara and Seoni districts, on the East by Bhandara and on the South and West by Chandrapur and Wardha, with a small strip of on the North-West by Amravati district by Berar. It is floristically the most interesting district of the region. The most intensive floristic studies on Nagpur (Ugemuge N. R. 1986) have made no mention pollen and nectar yielding plant species. An attempt is made here to enumerate the honey yielding plants of the district. Earlier work have been made to evaluate bee forage plants in different parts of the country namely, Maharashtra (Deodikar G. B. and Thakar C. V. 1953, Deodikar et al ; 1958a, Chaubal P. D. and Deodikar G. B. 1965, Chaubal P. D. 1982, Thakar et al; 1962, Chaubal P. D. and Kotmire S. Y. 1980), Uttar Pradesh (Muttoo R.N. 1953, Kohli N. 1958, 1959, Singh P.N. and Singh R. P.1987), Punjab and Bhopal (Rahman Khan A. 1941, Malik S. A. K. 1948, Chaudhari R. K. 1979), Karnataka and Kerala (Kallapur S. K. 1959), Bihar (Mohan Rao et al; 1984, Mohan Rao G. and Shakuntala Nair K. 1958).

Materials and Methods:

Honey samples and pollen loads were collected from different villages of Nagpur district in different seasons during the period 1998-2000. They were analysed by the method of Erdtman (1960) for their pollen contents. The flowering plants visited by bees in this area were collected for herbarium and pollen slides were prepared for reference in glycerine-jelly. The pollen grains obtained from the analysed honey samples and pollen loads were identified with the help of the reference pollen slides as well as reference monographs on the family Acanthaceae (Chaubal 1966) and Asteraceae (Chaubal 1976).

Observations:

Information on the bee forage plants in the following enumeration is presented in the alphabetical order of families. Under each family the name of the species is followed by local / common name, if any, its flowering period and its





utility to bees. A total of 59 plant species of this district are important for bee-keeping since they yield either nectar and / or pollen. Of these, 39 provide both nectar and pollen and 20 only nectar.

The monthwise number of sources of bee forage is presented in table - 1. The floral abundance is in the months of January, February, September, October and November and is greatest in March. In May, the hottest month of the year (34.16^o C and 19.94^o C), the forage production goes down as most of the winter blossoms mature into fruits and seeds. However, certain summer herbs flower in June and July when the rains set in. The blooms continue in August and September. During June to September high temperature, wind velocity and torrential rains, however, seriously restrict bee foraging and honey production. Considering the number of plants, October is the most lean period for bees. However, this does not present the true picture of the region since the early flowering *Brassica campestris* var. *toria* provides forage and this situation improves considerably by the middle of November when more plants produce blossoms. The bees have to be kept of sugar diet only during May to September.

Thus the bee forage at Nagpur is available for a major part of the year. Some of the best sources are *Albizia lebbeck*, *Blumea* sp., *Capparis grandis*, *Capsicum annuum*, *Careya arborea*, *Carthamus tinctorius*, *Casearia elliptica*, *Celosia argentea*, *Clerodendrum* sp., *Coriandrum sativum*, *Dodonea viscosa*, *Helianthus annuus*, *Justicia procumbens*, *Lagascea mollis*, *Lathyrus sativus*, *Leacaena leucocephala*, *Mangifera indica*, *Maytenus emarginata*, *Parthenium hysterophorus*, *Prosopis juliflora*, *Sonchus oleraceus*, *Sphaeranthus indicus*, *Syzygium cumini*, *Terminalia* sp., *Tinospora cordifolia* and *Tridax procumbens*.

Enumeration of bee forage plants

In the following enumeration, plant species are given under their respective families, which are arranged alphabetical order. The plant botanical name is followed by the common or local name, if any, in brackets, its bee forage value and the flowering time.

Acanthaceae

Acanthus sp., Nectar.

Astercantha longifolia (Talimkhana), Nectar and Pollen, September, February.

Justicia procumbens, Nectar and Pollen, September, November.

Rungia repens, Nectar and Pollen, October, December.

Alangiaceae

Alangium salvifolium, Nectar, January, April.

Amaranthaceae

Altemanthera sessilis (Galighosh), Nectar, Almost round the year.

Celosia argentea (Kukada), Nectar and Pollen, October, March.

Anacardiaceae

Mangifera indica (Amba), Nectar and Pollen, January, May.





Apiaceae

Coriandrum sativum (Kothimbir), Nectar and Pollen, Almost round the year.

Asteraceae

Ageratum conyzoides (Osadi), Nectar , Almost round the year.

Bidens pilosa (Putiyam), Nectar and Pollen, Almost round the year.

Blumea sp., Nectar and Pollen.

Carthamus tinctorius (Karadi), Nectar and Pollen, December, January.

Echinops echinatus (Untakatara), Nectar, November, April.

Helianthus annuus (Suryaphool), Nectar and Pollen, November, February.

Lagascea mollis, Nectar and Pollen, July , November.

Parthenium hysterophorus (Gajar gawat), Nectar and Pollen, Almost round the year.

Sonchus oleraceus ,Nectar and Pollen, November, April.

Sphaeranthus indicus (Gorakhmundi), Nectar and Pollen, October, March.

Tridax procumbens (Kambarmodi), Nectar and Pollen, Almost round the year.

Vernonia cinerea (Sahadevi),Nectar and Pollen, Almost round the year.

Bombacaceae

Bombax ceiba (Katsavari), Nectar, February, April.

Brassicaceae

Brassica sp., Nectar and Pollen, October, March.

Caesalpiniaaceae

Delonix regia (Gulmohar), Nectar and Pollen, February, June.

Capparidaceae

Capparis grandis , Nectar and Pollen, April, September.

Celastraceae

Maytenus emarginata (Bharati), Nectar, September, April.

Cleomaceae

Cleome gynandra (Pandhari tilwan),Nectar and Pollen, July , January.

Cucurbitaceae

Cucurbitaceae type, Nectar.

Momordica charantia (Karle), Nectar and Pollen, September, April.

Combretaceae

Terminalia sp., Nectar and Pollen.

Lamiaceae

Hyptis suaveolens (Rantulsi), Nectar and Pollen, October, March.

Ocimum basilicum (Sabja), Nectar and Pollen, August, March.

Lecythidaceae

Careya arborea (Kumbhi), Nectar and Pollen, March , May.





Liliaceae

Allium cepa (Kanda), Nectar and Pollen, Almost round the year.

Linaceae

Linum usitatissimum (Jawas), Nectar, December, February.

Malvaceae

Abutilon indicum (Petari), Nectar and Pollen, October, February.

Mimosaceae

Albizia lebeck (Shirish), Nectar and Pollen, February, June.

Leucaena leucocephala (Subabhul), Nectar and Pollen, October, January.

Mimosa sp., Nectar.

Prosopis juliflora (Kabuli kikar), Nectar and Pollen, September, March.

Menispermaceae

Tinospora cordifolia (Gulvel), Nectar and Pollen, November, March.

Myrtaceae

Eucalyptus globulus (Nilgiri), Nectar, Almost round the year.

Psidium guajava (Peru), Nectar and Pollen, October, March.

Syzygium cumini (Jambhul), Nectar and Pollen, January, May

Meliaceae

Azadirachta indica (Kaduneem), Nectar and Pollen, March, April.

Melia azadirachta (Bakneem), Nectar, March, May.

Papilionaceae

Alysicarpus rugosus (Shevari), Nectar, August, November.

Cajanus cajan (Tur), Nectar and Pollen, September, January.

Lathyrus sativus (Lakh), Nectar and Pollen, January, March.

Pisum sativum (Matar), Nectar, January, March.

Pongamia pinnata (Karanj), Nectar, February, August.

Portulacaceae

Portulaca oleracea (Ghol), Nectar, Almost round the year.

Rutaceae

Citrus sp., Nectar and Pollen, January, March.

Simaroubaceae

Ailanthus excelsa (Maharuk), Nectar, December, April.

Solanaceae

Capsicum annuum (Mirchi), Nectar and Pollen, Almost round the year.

Samydaceae

Casearia elliptica (Kala karai), Nectar, January, April.





Sapindaceae

Dodonea viscosa (Jakhami), Nectar and Pollen, August, April.

Sapindus emarginatus (Ritha), Nectar, October, March.

Verbenaceae

Clerodendrum sp., Nectar and Pollen.

Table. 1- Monthwise total number of bee forage sources of Nagpur district

Month	Number of sources			
	Nectar	Nectar and Pollen	Pollen	Total
January	3	8	0	11
February	3	5	0	8
March	3	12	0	15
April	7	4	0	11
May	1	3	0	4
June	0	2	0	2
July	0	2	0	2
August	2	2	0	4
September	2	5	0	7
October	1	8	0	9
November	2	5	0	7
December	2	2	0	4
Almost round the year	4	7	0	11

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