

ABSTRACT

Honey is a natural product of wide acceptability and universal popularity since a time immemorial. Attraction to this product have inducted people through years in the job in delving into the details of the process of its production and other associated aspects. Apiary, a system of rearing honeybees for assured production of honey, also started its journey since long time before. Melissopalynology is the science dealing with the identification and scoring of relative abundance of pollens available from honey and corbicular loads. This information is quite supportive for the sustenance of bees as well as the apiary business dealing with products namely, honey, pollen and wax of immense commercial value. This thesis illustrates the results of a melissopalynological survey conducted for three consecutive years in some areas of North 24 Paraganas district of the state West Bengal of India. The results revealed altogether 56 species, belonging to 33 families, to contribute to the production of honey and pollen pellet throughout the year in that area. Although always an effort, on the part of apiarist, was noted to maximize the productivity by placing the hive-boxes in close proximity to the blooming crops of agricultural fields, many tree species and weedy herbs were recorded to contribute to the production of honey, in addition. Notwithstanding the presence of a period of less productivity during monsoon, barely for two months, no dearth period having complete absence of production could be identified. Honey collected in different months were noted to be mostly unifloral, even in presence of the pollens of some other potent nectariferous and/or polliniferous species, often quite abundantly but less than 45% of the total count. Albeit the occurrence of characteristic population of pollen in every month's honey collection, variation to some extent was also witnessed in the number and the members present in the collections of the same month, but of different years. Six plant species were noted as the predominant ones through their pollen representation in honey. Amongst them two members were agricultural crops, one species was a mundane fruit plant, another species was a wild tree and rest two

species were wild herbs. Three species were recorded as 'secondary', nineteen species as 'important minor pollens' and fifteen species as 'minor' pollens. These species are also supposed to be effective in providing nectar and pollen to support apiary. *Brassica* sp. was found to be the most efficient nectariferous and polliniferous species remaining consistently as the major contributor of nectar as well as pollen for almost three consecutive months from December till February. This study also envisaged 11 species out of total 56 species, on record, to be purely nectariferous, 18 species as purely polliniferous and 27 species as the contributors of both of nectar and pollen. Apart from portraying the gamut of species involved in the sustenance of apiary in that locality, the survey also depicts the list of plant species being benefited, in turn, by the role of *Apis mellifera* as pollinator. Thus, a kind of mutualism exists in the process by which both *Apis mellifera* and the plants foraged by them are benefited.