南投名間地區蜜蜂花粉團之研究

The study of bee collected pollen loads in Nantou,Taiwan

林淑華

[摘要]

本文分析 1991 年間名間蜜蜂採集之花粉團，鑑定花粉團中所含花粉之種類，目地在於探討該地區粉源植物之種類,及其花粉之出現頻率。此結果可供蜂農作為種植或尋找粉源植物時之參考，以提高花粉團產量,增加養蜂之收益.本研究利用光學顯微鏡及掃描式電子顯微鏡,研究觀察花粉團內花粉的外部微細構造,並與新鮮植物花粉做比較;藉此得知南投名間地區重要之粉源植物,及其花期和出現頻率.並藉此討論氣溫,濕度,花部特徵及其它可能影響蜜蜂採集活動之因子。根據花粉分析之結果得知:名間地區之粉源植物計 56 科 106 種.其中菊科 12 種最多，次為豆科 9 種，大戟科 8 種，茄 科 5 種，禾本科 4 種。若以出現頻率比較:茶科佔全年 28.69%為最高者, 次為菊科佔 24.34%,豆科佔 8.77%,禾本科佔 7.44%.主要粉源植物中,全 年開花之植物為霍香薊 (Ageratum spp.) 及龍葵 (Solanum nigrum);花 期長達半年以上者為鬼針 (Bidens bipinnata) 等 13;一年兩次花期者僅有春不老 (Ardisia squamulosa) 及水稻 (Oryza sativa)兩種. 1991 年 全年有 181 天裝置花粉收集器計，一個蜂群可收取 6.3 公斤之花粉團.蜜蜂 於上午(12 時以前)所採集之花粉團多於下午採集之量.在三月至四月間蜜 蜂偏重於採集荔枝及龍眼之花蜜,花粉團之採集量因此大為降低;六至九月為名間地區的雨季，且溫度常高於 30℃,此時花粉團之採集量亦減少很多; 此為全年中兩個花粉團之低產量期.花型,花色,花藥開裂之時間,植物分布及氣溫濕度等天氣狀況,都是可能影響蜜蜂採集活動之因子.多數粉源植物具下列特徵:花冠開展或花藥明顯可見;花色為黃,白色;花藥於上午開裂; 分佈於蜂群附近.不同蜂群對於粉源植物之偏好有所異,花粉團之產量亦不 同;但粉源植物之種類則頗類似, 顯見蜜蜂傾向於廣泛利用環境中可採集之花粉。

關鍵字: 蜜蜂 Honeybee
花粉 pollen
花粉團 pollen load

In this study, the species of pollen contained in pollen lods collected from Ming-Chien, Nantau are identified and their frequencies are calculated. In addition, the ultrastructure of fresh pollen and pollen in pollen loads are studied under light microscopic(LM) and scanning electron microscopic(SEM). The pollen sources, the flowering period, the time of pollen collection during a day and the degree of dominance of pollen species are compared. Those factors such as temperature, characteristics of flower which might affect the gathering activity of bees are also taken into account. The results showed that there are total of 106 taxa of pollen belonging to 56 families are found in pollen loads from the collections. Ampng them, 12 species belong to Compositae, 9 species to Leguminosae are identified. The Theaceae occupies the highest frequency(28.69%), and next comes to the Compositae (24.34%) successively. Pollen source plants with anthesis through the whole the year are Ageratum spp. and Solanum nigrum. Bidens bipinnata and 13 other species have flowering period more than half year, while Ardisia squamulosa and Oryza sativa havetwice within a year. In 1991, pollen trap were placed for 152 days; a single bee colony could gather 6.3 Kg pollen loads. Quantity of pollen loads that collected before noon is greater than that of afternoon. Factors that affect pollen gathering activity of bees include: morphology of flowers, and temperature. Most of the pollen source plants have the following features: petals open or anther flower yellow or white, anther dehiscence at noon and growing position closely to the hive. Different colonies of bees have different preference against pollen sources and the productivity of pollen loads, however, the types of pollen sources are