

## **DETERMINATION OF NITROGEN CONTENT IN WORKER BEE BODY PRODUCED BY DIFFERENT RACES AND THEIR HYBRIDS DURING DIFFERENT SEASONS.**

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### **ABSTRACT**

The present study was carried out during 2007, 2008 in the apiary of faculty of Agriculture, Al-Azhar University at Naser City. This study compared the nitrogen content of worker bee body produced by different races and their hybrids. From data obtained during spring and summer, it was found no significant difference among nitrogen level of worker bee body resulted from different races and their hybrids during spring and summer, while it was significant difference in late summer. The nitrogen content of worker bee body produced by different races and their hybrids were 11.85% and 10.09% for Italian and Carniolan race, while it was 11.10% and 9.74% for both Italian F<sub>1</sub> and Carniolan F<sub>1</sub>, respectively. From above data it is clear that the biological and economic value of the locally of Italian race in both summer and late summer season is more obvious and statistically significant. Therefore they may be recommended for use in the commercial apiaries. It is also true that the biochemical variation can be useful in separating at least some population within *Apis mellifera*, L.

### **INTRODUCTION**

Proteins are required by colonies of honey bees (*Apis mellifera*) for normal growth of individual bees, body nitrogen, hypopharyngeal gland and fat body development. The protein requirements of honey bees are normally satisfied by the consumption of pollen, but not all pollens have the same biological influence (Maurizio 1950). Ivanov and Spasov (1990) stated that the total nitrogen, lipids and dry matter and also invertase, amylase, glucose and catalase, activity were determined invertase, amylase and glucose oxidase activities were highest in summer and autumn but catalase activity was highest in winter. Nitrogen and lipid contents were highest in summer. Body weight and head weight highest in summer while decreased in winter.

Martin (1967) concluded that some variation in the protein patterns were observed dependent on the age of bees and also on the season of the year. Nation and Robinson (1968) concluded that addition of a small amount of pollen ash to an artificial diet for adult honey bees improved their ability to rear brood.

Imdorf, A. *et al.* (1988) concluded that bee colonies were prevented from collecting pollen, and the effect on brood rearing and on the N,P,K, Ca, Na and Mg contents of pupa was studied. Under these conditions brood rearing was reduced and fully stopped, which lead to increase in population size, whereas control colonies with access to pollen developed normally. Only significant differences were found in chemical analysis in pupa and worker bees of colonies with and without access to pollen, it is concluded that