ECOLOGICAL AND BIOLOGICAL STUDIES ON THE PHLEBOTOMINE SAND FLIES (DIPTERA-PSYCHODIDAE) IN A CUTANEOUS LEISHMANIASIS FOCUS IN SINAI, EGYPT.

A Thesis

presented to the Faculty of Science

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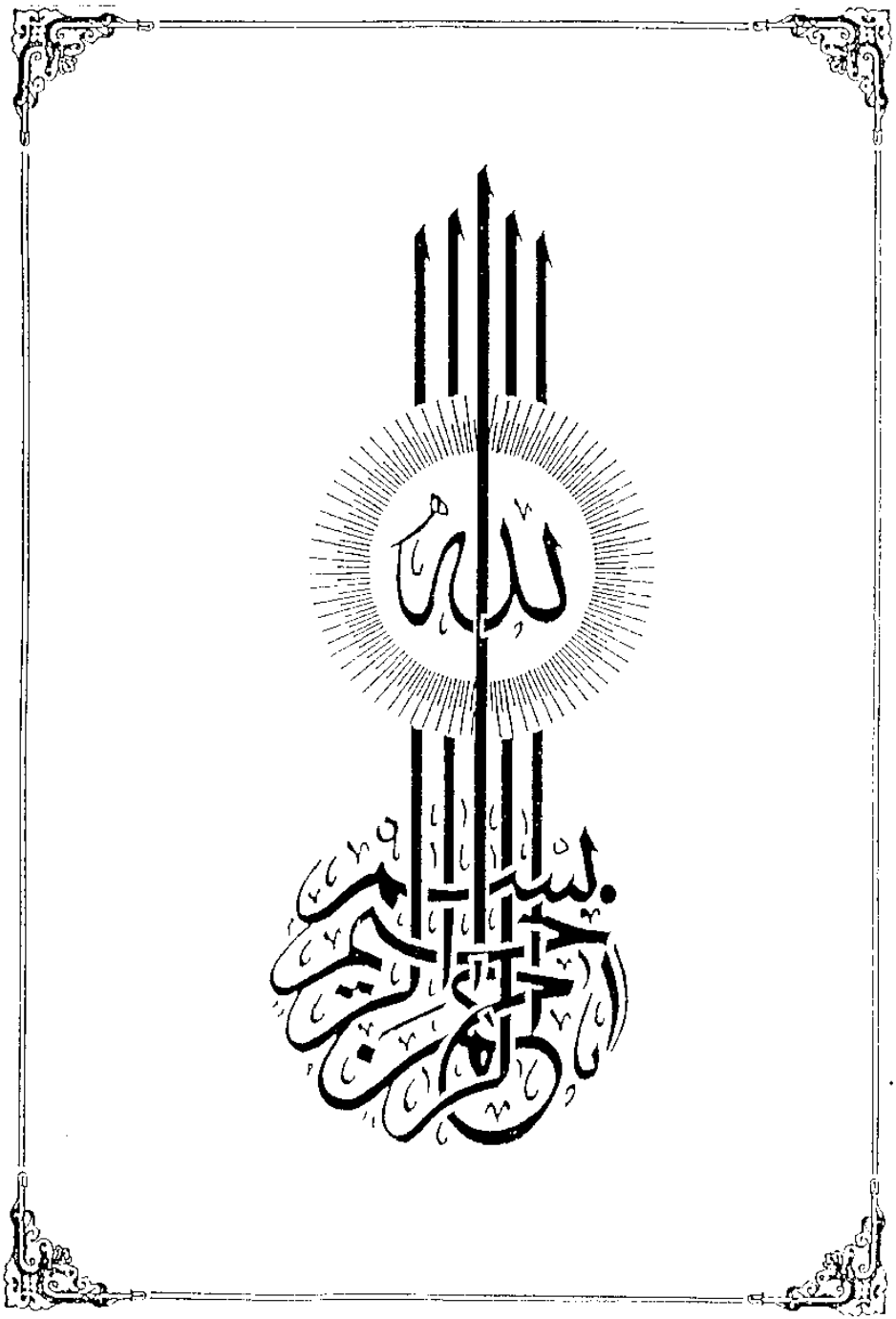

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Contents

Abstract

Sand flies were collected extensively from 3 habitats (planted, domestic and wild) at Nekhel and El- Themed, North Sinai. *Phlebotomus papatasi*, *P. sergenti* and *P. kazeruni* were recorded at Nekhel and *P. papatasi* and *P. sergenti* at El-Themed. The species differed in their densities in the different habitats. *Phlebotomus* species seem to have a seasonal range of activity that starts from march and ends by November with the highest densities obtained during June and August.

Parity of *P. papatasi* was estimated through accessory glands inspection while the physiological age was determined through examination of the ovaries (follicular dilatation) and was confirmed by accessory glands inspection.

Comparative studies were made to estimate the life table characteristics of *P. sergenti* and *P. papatasi* originating from Sinai, and the effect of *L. major* infection on such attributes. No significant differences were found between the non infected species. Infection with L. major significantly reduced the productivity of both *P. papatasi* and *P. sergenti* whereas, it significantly reduced the number of eggs laid by *P. papatasi*.

By using scanning electron microscope, the eggs of the two species were not significantly different in their size but were distinct in their morphology.

Three species of rodents were collected namely *Meriones sacramenti*, *Gerbillus pyramidum* and *Mus musculus*.

Experimental infection of laboratory bred sand flies (*P. papatasi* and *P. sergenti*) by *L. major* was carried out by artificial feeding and by feeding directly on rodent species namely *Meriones sacramenti* and hamster. Parasites were detected from the guts of both *P. papatasi* and *P. sergenti* infected by the three above mentioned techniques. While migration to the head region was only recorded for *P. papatasi* fed artificially by membrane feeding.

LIST OF TABLES