

## INSECT POLLINATORS AND THEIR EFFECT ON THE YIELD OF LUPIN, *Lupinus termis*

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### ABSTRACT

The present investigation aimed to identify insect visitors of the lupin (*Lupinus termis*) and their effect on the yield during flowering periods of 2005/2006 and 2006/2007 seasons at Shalakan district, Kalubia Governorate.

Obtained results indicated that 17 pollinator species belong to five orders; Hemiptera (2 species), Lepidoptera (2 species), Coleoptera (3 species), Diptera (6 species) and Hymenoptera (4 species). Honeybees, *Apis mellifera* L. proved to be the main numerous pollinator, constituting 14.66, 18.59% of the total collected insects in the two seasons, respectively. The highest occurrence of *A. mellifera* was detected around mid season and at 12-2 p.m. Prevailing air temperature and R.H. % affected moderately the occurrence of insect pollinators.

The presence of insect pollinators during flowering period of lupin significantly increased the main yield parameters such as number of pods/plant, number of seeds/pod, number of seeds/plant and weight of seeds/plant. On the contrary, insect exclusion caused the inverse. As a result, the seed yield/feddan attained 1631.95, 868.8 and 1366.87 kg for open pollination, insect exclusion and honeybee pollination, respectively.

**Keywords:** Pollinators, pollination, hymenoptera, Coleoptera, seed yield.

### INTRODUCTION

In Egypt, lupin (*Lupinus termis*) is one of the most important leguminous crops, it used as a good source of protein and industrial drugs. Insect pollinators are needed for the reproduction of 90% of flowering plants and one third of human food crops (Thapa, 2006). They play an essential role in increasing the productivity of field and horticultural crops, without displacing other necessary farm commodities. This role could be attributed to the efficiency of pollinating insects in increasing both self-fertilization (Pazy, 1984; Almeida and De Maltez, 1979) and cross pollination which promotes hybrid vigor (Langridge; Goodmann, 1985 and Yousif-Khailil *et al*, 1989).

In addition, pollinators are part of the intricate web that supports the biological diversity in natural ecosystems that helps sustain our quality of life (Thapa, 2006).

The present work was carried out to survey insect pollinators of the lupin along with their foraging behaviour. In addition, the effects of open pollination, insect exclusion and honeybee pollination on the yield parameters of the lupin were also taken in account during the two successive seasons of 2005/2006 and 2006/2007.