

## **2.15 Negative sublethal effect of the insecticide thiamethoxam on honeybees**

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### **Abstract**

Hypopharyngeal glands (HPGs) are the main organs responsible of royal jelly secretion. The development of the HPG may be affected by substances known for their insecticide effects. In this work we investigated the effects of thiamethoxam on HGP development. Thiamethoxam was administered in the sugar solution and in the pollen at the  $LC_{50/5}$ , equivalent to 0.062 ng/ $\mu$ l. The quantity of food consumed (sugar solution and pollen) per honeybee and per day was also measured. The development of HPG was assessed with a microscope by measuring the acini diameter after dissection. The measurements were done on *Apis mellifera intermissa* intoxicated during 9 days and 14 days with sublethal concentration of thiamethoxam. The acini of the HPG of thiamethoxam-treated honeybees were 18.66 % smaller in diameter in 9-day-old honeybees and 20.34 % smaller in 14-day-old honeybees than in the same-aged untreated honeybees; the difference was significant for both age groups. The quantity of food consumed per honeybee per day was the same for both treated and untreated honeybees. Thiametoxam also significantly affected the survival of honey bees.