

Evidence of immune system morpho-functional damages induced by Cadmium in *Apis mellifera*

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In previous researches severe damages induced by Cadmium (an ubiquitous environmental pollutant whose intracellular oxidative effects are increasingly lethal) exposure in human have been demonstrated. Morphologic effects were observed in Central Nervous System, liver, kidney, placenta. Recently, the involvement of immune system in Cadmium intoxication was demonstrated in mammals; we, therefore, tried to evidence such effect in a simple model as *Apis Mellifera*. In this animal the immune system is represented by “fat bodies” which produce proteins active in defense against pathogenic agents. It is important to stress out that a dangerous syndrome causing the collapse of *Apis mellifera* hives has intensified recently, in Europe and North America. Current research in this field is oriented towards identifying a synergy of contributing factors to the weakening of the hive. In this paper, we aim to determine whether contamination by cadmium may have an immunosuppressive effect on the insect. Preliminary results denote that the heavy metal causes a severe damage in fat bodies, leading to substantial immunodeficiency in exposed bees, suggesting that in polluted areas the hives may have difficulty in dealing with pests and pathogens that threaten them.