THE BODY SURFACE PROTEOLYTIC SYSTEM OF *APIS MELLIFERA* IN PRESERVING THE HEALTH OF BEE COLONIES.

Summary

The CCD effect (colony collapse disorder), manifested in the massive disappearing of bee (*Apis mellifera)* colonies, has recently become the reason for much debate and inspired numerous publications. The phenomenon entails enormous economic losses in the production of oil plants, fruit and vegetables. Despite scientists' efforts worldwide, the problem of massive dying out of bees has not been solved yet. Meanwhile, it has assumed global dimensions. It must be stressed that, in many cases, potential pathogenic factors (separately) do not have untoward consequences. Therefore, increasingly more researchers think that CCD is not caused by those factors *per se,* but rather by a general immunity impairment that stems from the progress of civilization, as well as intensified agriculture and breeding. In this context, understanding the mechanisms and conditions of apian immunity/resistance can help better prevent CCD and numerous other diseases.

An important element of the external protective barrier of *Apis mellifera* is the biologically active protein layer on the body surface. The proteins protect the organism from pathogen invasions. Recently, it has been shown that many of those proteins are characterised by protease and protease-inhibitor activity. More specifically, this body-surface activity in bees depends on the developmental phase and caste of the insect, as well as environmental pollution.