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Damage to the Honey Bee's Midgut Caused by *Nosema*

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Infection of bees with the microsporidium *Nosema apis* Zander (1909) causes the mass mortality of bee colonies, which has emerged in recent years. Penetrating into the gastrointestinal tract, *Nosema* destroys the walls of the midgut. The damage is expressed in the degradation of the epithelial cells of the mucosa. At the same time, there is an increase in the volume of round and polygonal epithelial cells, their cytoplasm acquires basophilic granularity, the digestive vacuoles disappear, and the cell nuclei become hypochromic and some demonstrate signs of pyknosis. The c,ambial cells in the stomach of sick bees are not detected, and the peritrophic membrane is completely lost. Unevenness along the length of the digestive glands is manifested, which is due to the desquamation of secretory cells. Destruction of the midgut cells and the loss of the peritrophic membrane, almost or completely, deprive the bees of their trophic function, which led to their elimination caused by hunger.

Keywords: honey bee, midgut, *Nosema apis*, cell degradation, microsporidia