

**OR346***Life strategy of honeybee larvae orphaned at different age***Karolina Kuszewska, Michal Woyciechowski**

In honeybees, it is a rule that workers are sterile in the presence of the queen but start laying male-determined eggs in queenless colonies. However, recent studies showed that the larvae fed in an orphaned colony can switch from their typical altruistic role to a more selfish one and develop into so-called rebel workers which are more engaged in laying their own male-determined eggs than in rearing the queen's offspring. Unknown is whether larvae orphaned at any time of their feeding period can develop into the rebel workers. To answer this question we conducted our experiment using five colonies (replicates), where worker larvae were reared in seven different conditions (groups 0-6). The workers from group 0 were raised in queenright conditions during the entire feeding period, while the workers from groups 1 to 6 were raised in queenless conditions, respectively from 1 to 6 of the last days of their open larval life. Newly emerged workers from all 7 groups were weighed and dissected. Our results showed that workers reared as larvae in different conditions did not differ in body mass ( $p = 0.284$ ). Whereas, the workers reared as larvae during 4 or more days in queenless conditions (groups 4-6) have more ovarioles in their ovaries ( $p < 0.001$ ), smaller hypopharyngeal glands ( $p < 0.001$ ), bigger mandibular glands ( $p < 0.001$ ) and bigger Dufour's gland ( $p < 0.001$ ) compared to the workers from groups 0-3. This means that only the workers, which are orphaned during the first 4 or more days of the feeding life develop into rebel workers while larvae orphaned later in their life develop into typical sterile workers.