

## **Abstract**

Nematoceros insects belong to the order Diptera, one of the largest and worldwide spread groups of insects. Haematophagous species act not only as tormentors, but also as vectors of various pathogens. The first section of this thesis reviews about insect's reproductive systems, multiple blood-feeding, autogeny and development of ova; the information which are necessary for the transmission understanding. The principal topic of the thesis is reviewing methods for distinguishing parous and nulliparous females, which are commonly used for four Nematoceran groups: mosquitoes (Culicidae), black flies (Simuliidae), sand flies (Phlebotominae) and biting midges (Ceratopogonidae, the genus *Culicoides*). The section is focused mainly on family Culicidae, because the methods used for mosquitoes were the groundwork for developing methods suitable for the other groups. Some of the procedures, for example counting follicular dilatations or assessing the condition of tracheoles in the ovaries, are used for most of the studied groups; others, like pigmentation of the abdominal wall in the genus *Culicoides*, can be used only for one group. Knowledge of the female parity is very important for epidemiological and ecological studies, because only parous females, previously blood-fed on infected hosts, can transmit pathogens.

Key words: nulliparous, parous, ovaries, Nematocera, Culicidae, Simuliidae, Phlebotominae, *Culicoides*