

LIFE CYCLE OF SPINOSE EAR TICK *OTOBIOUS MEGNINI* ASSOCIATED WITH HORSE OTOACARIASIS IN SRI LANKA

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Spinose ear tick, *Otobius megnini* is a one host, soft tick (Family Argasidae) that parasitizes domestic animals and occasionally humans. From its centre of origin Southwestern North America, it has distributed over a vast geographic region. It is speculated that *O. megnini* was introduced to Sri Lanka from India via horse trading. This tick had never been reported from any animal before except for patients visiting the ENT clinic in Nuwara Eliya General Hospital as an intra aural infestation. Interestingly, all these patients had been working as jockeys at racecourses in Nuwara Eliya. The present study was carried out to determine the life cycle of *O. megnini* under laboratory conditions. Stables in Nuwara Eliya racecourses were visited twice a month from May to September 2013. Ticks were collected from the ear canals of seven horses, brought to the lab and reared on rabbits. All ticks collected from horse ear canals were immature stages (larvae and nymphs). Except for one lactating mare, all the other horses (10 males and 4 females) were infected with the spinose ear tick. Mean weight of engorged larvae was 4.7(±1.9) mg. Larvae weighing less than 1 mg did not moult but the majority (93.7%) of larvae, which were heavier than 1 mg successfully moulted to nymphs with an average pre-moulting period of 4.5(±0.9) days. Moulting of the larvae was completed within nine days. Heavier larvae had a shorter pre-moulting period and higher moulting success. Mean larval survival period was 44.2(±4.3) days. Nymphs that were collected from horses had mean weight of 37.2(±23.17) mg. Naturally detached nymphs had a mean weight of 43.1(±10.1) mg. Weight of nymphs moulted to adult was 43.4(±20.2) mg. Smaller nymphs less than 11 mg did not moult to adults but the majority (95.4%), which were heavier than 11 mg successfully moulted within 22 days. Pre-moulting period was 6 to 21 days with an average of 11.3(±2.2) days. Majority moulted after 10 days of detachment. All the nymphs weighing over 60 mg moulted into females while nymphs weighing less than 60 mg moulted into either males (67.8%) or females (32.2%). Sex ratio of the overall nymph population was 1:1. *Otobius megnini* infesting horses in Sri Lanka has one nymphal instar. Number of nymphal instars can vary from one to three, which is one of the major dissimilarities among *O. megnini* populations. During the study two females weighing 64 mg and 67 mg laid eggs without mating but the eggs were not viable. Average pre-oviposition period of females was 9.0(±4.7) days. Average total number of eggs laid by females over 70 mg was 716.4(±293.4). The mean oviposition period was 52.2(±10.9) days. Minimum incubation periods at three different temperatures 21 °C, 27 °C, and 31 °C were 25.7(±2.0), 12.8(±0.7) and 9.5(±0.7) days, respectively and the incubation success at 27±1 °C was 65.5%. There is only one nymphal instar in the life cycle of Sri Lankan *O. megnini* as in those of the Neotropical population whereas the Indian population has three nymphal instars. This difference observed in the life cycle of Sri Lankan species could be an adaptation to the cold environmental conditions in Nuwara Eliya.

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