

## **Life cycle of *Hyalomma isaaci* (acarina: ixodidae) under laboratory conditions**

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*Hyalomma isaaci* is a hard tick infesting mainly cattle and buffalo in all over Asia and in Sri Lanka. Human infestations of *H. isaaci* have been reported from Sri Lanka especially related to otoacariasis. This study was conducted to describe the biological and reproductive parameters of the two host life cycle of Sri Lankan population of *H. isaaci* under laboratory conditions. Engorged wild female ticks were collected from cattle and buffaloes from Polonnaruwa district and were allowed to lay eggs in the laboratory (Temperature 27±1 °C; Relative Humidity 70%-80%). The larvae hatched out from the eggs were used for experimental infestation on New Zealand white rabbits. The life cycle completed within 62 - 166 days. Females laid 15-6166 eggs for 1-24 days after spending a latent period of 3-14 days. Newly emerged larvae were under incubation for 19-47 days and after they resumed feeding, they moulted attached to the host itself. Subsequently, newly emerged nymphs were reattached for feeding and fully engorged nymphs were collected after 15-21 days from the introduction of larvae for feeding. Successively the nymphs took 14-18 days for moulting before emerging as adults. Females fed on rabbits for 8-10 days reached a maximum engorgement weight of 127.0 mg. The male: female sex ratio was 2:3 in the adults which were moulted under laboratory conditions. Mean Reproductive Efficiency Index (REI) and Reproductive Affinity Index (RAI) were 7.1 and 3.6, respectively. There was a strong significantly positive correlation in weight of the female with the number of eggs laid ( $\rho = 0.774$ ,  $p < 0.01$ ) and percent eclosion ( $\rho = 0.891$ ,  $p < 0.05$ ). Similarly, significant positive correlations were found between REI and RAI with the female weight ( $\rho = 0.686$  and  $0.932$  respectively,  $p < 0.02$ ). Larger females laid higher number of eggs. When New Zealand rabbits were used as hosts under 27°C±1 and 70% humidity, *H. isaaci* completed its full life cycle however the mature stage did not feed successfully as immature stages.

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