



The genus *Hyalomma* Koch, 1844. VIII. Redescription of three *Hyalommina* Schulze, 1919 species (Acari: Ixodidae) from South Asia with notes on their biology

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Abstract

The South Asian ticks *Hyalomma* (*Hyalommina*) *brevipunctata* Sharif, 1928, *Hyalomma* (*Hyalommina*) *hussaini* Sharif, 1928 and *Hyalomma* (*Hyalommina*) *kumari* Sharif, 1928, are morphologically fairly similar. The males can be distinguished from each other by size, color and their punctation patterns. The females are easily distinguished by the shape of the genital aperture and its preatrial fold, and they also differ in size, color and punctation patterns. The immature stages can be distinguished by the measurements of various characteristics and the ratios of these, the shape of the scutum, gnathosoma and hypostome, number of denticles on the hypostome and size of the spurs on coxae. All parasitic stages of the three species are illustrated and redescribed here. Their distributions are restricted to South Asia, although there are some records from Central Asia. Large and medium-sized ungulates are the principal hosts of the adults, whereas the immature stages infest various species of small mammals. All are three-host species. Data on their disease relationships are also provided.

Key words: *Hyalomma* (*Hyalommina*) *brevipunctata*, *Hyalomma* (*Hyalommina*) *hussaini*, *Hyalomma* (*Hyalommina*) *kumari*, male, female, nymph, larva, systematics

Introduction

Despite the generally held opinion that most species of the genus *Hyalomma* Koch, 1844 are abundant and widely distributed in southern Europe, Africa and Asia, ticks belonging to the subgenus *Hyalommina* Schulze, 1919 are fairly rare and have quite restricted geographical ranges.

The *Hyalommina* species are divided into two groups geographically. Species in the first group, namely *H. rhipicephaloides* Neumann, 1901, *H. punt* Hoogstraal, Kaiser & Pedersen, 1969 and *H. arabica* Pegram, Hoogstraal & Wassef, 1982, are present in northeast Africa, Arabia and the Near East. Species belonging to the second group, namely *H. brevipunctata* Sharif, 1928, *H. hussaini* Sharif, 1928, *H. kumari* Sharif, 1928 and *H. hystricis* Dhanda & Raja, 1974 are virtually restricted to South Asia. Preliminary observations also indicate that these groups are quite different morphologically. The present communication is devoted to the first three species of the second group.

In his revision of the Indian Ixodidae, Sharif (1928) described *H. hussaini* and *H. kumari* as full species, while he considered *H. brevipunctata* to be a variant of *H. hussaini*. He placed these ticks in the subgenus *Hyalommina*, which at that time contained only *H. rhipicephaloides*. The main characters of ticks of the subgenus were that they possessed only two pairs of anal plates (adanal and accessory), humped tarsi, and