

Hyalomma asiaticum asiaticum

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ABSTRACT

Hard ticks are widely distributed throughout the world and are obligate ectoparasites of vertebrate animals, including humans, and are the carriers of several diseases that affect humans. There are many species of hard ticks including Hyalomma, Dermacentar, Amblyomma, Anocentor, Apanomma, Haemaphysalis, Rhipicephalus, and Boophilus. Hyalomma asiaticum is species of hard tick and regarded as the vector that can transmit to humans and animals many pathogens such as Theileria annulata, Anaplasma marginale, and Crimean-Congo hemorrhagic fever virus, causing a serious risk to animal husbandry and a risk to the general public's health as well as financial losses. This article aimed because there are few researches about Hyalomma asiaticum asiaticum.

1. Introduction

Hard ticks are widely distributed throughout the world and are obligate ectoparasites of vertebrate animals, including humans, and are the carriers of several diseases that affect humans. There are many species of hard ticks including Hyalomma, Dermacentar, Amblyomma, Anocentor, Apanomma, Haemaphysalis, Rhipicephalus, and Boophilus [1]. *Hyalomma asiaticum* is species of hard tick and regarded as the vector that can transmit to humans and animals many pathogens such as *Theileria annulata*, *Anaplasma marginale*, and Crimean-Congo hemorrhagic fever virus, causing a serious risk to animal husbandry and a risk to the general public's health as well as financial losses [2, 3]. This article aimed because there are few researches about *Hyalomma asiaticum asiaticum*.

2. Discovery and distribution: *Hyalomma asiaticum* also named Asiatic Hyalomma, was first identified as *Hyalomma dromedarii asiaticum* subspecies by Schulze and Schlottko in 1929 [4]. It had been raised to the status of a species several years later by Schulze (1935). The former Soviet tick researchers identified three subspecies of *H. asiaticum*, including *H. a. asiaticum*, *H. a. caucasicum*, and *H. a. kozlovi* [5]. According to Guglielmone et al. [6], only *H. asiaticum asiaticum* is currently recognized as a genuine species, with all other subspecies being junior synonyms [7]. *Hyalomma asiaticum asiaticum* was identified under the Dissecting microscope by Hasson (2012) from cattle and sheep in Baghdad's south suburb, Iraq [8]. And was recorded for the first time by Polymerase chain reaction (PCR) from a small ruminant in Duhok Province, Kurdistan Region, Iraq in 2019 by Ismael and Omer (2019) [9]. *Hyalomma asiaticum* is a common species of hard tick in Asia, extending from western (China) to eastern (Syria) [10].

3. Morphology of *Hyalomma asiaticum*: the main morphological features of the female of *H. asiaticum* are a bulging pretrial fold, very deep cervical grooves, and a narrow, U-shaped vaginal opening [10]. The main morphological features of the male are a rounded posterior margin of the scutum, paramedian festoons that don't extend below the posterior costall border, long and very deep cervical grooves, the dorsal posterior margin of the basis capituli are deeply concave and angular, and there is an unbroken strip of ivory-colored skin on the dorsal aspect of the leg segments. They also have long, narrow, straight adanal plates [10].

4. The life cycle of *Hyalomma asiaticum* is three-hosts, the primary hosts of the adults are large hosts. Adults favor camels and sheep among these. The adults appear to have secondary hosts that include humans, birds, and smaller mammals like carnivores, leporids, rodents, and hedgehogs. Smaller mammals (rodents, hedgehogs, and shrews) are the primary hosts of the immature stages, while predators, birds, and reptiles appear to be secondary hosts [5, 11, 12, 13]. *Hyalomma asiaticum* can also infest humans [11].

5. Transmission of Pathogens: *Hyalomma asiaticum* can be transmitted several pathogens to humans and animals such as Crimean-Congo haemorrhagic fever, causing Q-fever, Siberian tick typhus, theilerioses and anaplasmosis [13, 14].

Conclusion: *Hyalomma asiaticum* is widely spread throughout Asia, from western China to eastern Syria. There are three species of *Hyalomma asiaticum* including, *H. a. asiaticum*, *H. a. caucasicum*, and *H. a. kozlovi*, while only *H. asiaticum asiaticum* is currently recognized as a genuine species

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