

## Distribution of hard ticks and electron microscopy study of *Rhipicephalus* species in Khuzestan and Mazandaran provinces

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### Abstract

Ticks are parasitic and bloodthirsty arthropods. Different species of ticks are important carriers of animal and human pathogens. Accurate identification and diagnosis as well as their continuous monitoring can be effective in reducing animal diseases, especially in the transmission of some protozoa. As an efficient tool in morphological studies and accurate identification of ticks electron microscopy is very useful. In the present study, using this tool, accurate identification of ticks collected from Khuzestan and Mazandaran regions in 4 consecutive seasons has been done. From a total of 6954 ticks collected from the body surface of cattle, sheep and goats in the two mentioned provinces, 13 species were detected. They include: *Rhipicephalus turanicus*, *Rhipicephalus sanguineus*, *Rhipicephalus (boophilus) annulatus*, *Rhipicephalus bursa*, *Hyalomma anatolicum anatolicum*, *Hyalomma asiaticum asiaticum*, *Hyalomma excavatum*, *Hyalomma marginatum*, *Dermacentor marginatus*, *Haemaphysalis parva*, *Haemaphysalis punctata*, *Haemaphysalis inermis* and *Ixodes ricinus*. Based on the results, factors such as temperature and sampling season are directly related to the isolated ticks. The results of the present study showed that the frequency ratio of *Rhipicephalus* ticks in different seasons in Khuzestan and Mazandaran provinces has followed a relatively similar pattern.

**Key words:** Ticks, Electron Microscope, *Rhipicephalus*, Khuzestan, Mazandaran

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