



## Tick-Borne Pathogen Detection in Rhipicephalus Bursa Collected from the Garrano Horse Breed in Portugal

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### Abstract

This study investigates the presence of tick-borne pathogens in Rhipicephalus bursa ticks collected from the indigenous Garrano horse breed in Portugal. A total of 150 ticks were collected from healthy Garrano horses in the northern regions of Portugal during the peak tick season. Molecular techniques, including polymerase chain reaction (PCR), were employed to detect various tick-borne pathogens, including Anaplasma spp., Ehrlichia spp., and Borrelia spp. The results revealed a notable prevalence of Anaplasma phagocytophilum, indicating potential risks for equine health in the region. No evidence of Ehrlichia spp. or Borrelia spp. was found in the samples. This study highlights the importance of monitoring tick populations and associated pathogens in the Garrano horse breed, contributing to a better understanding of zoonotic risks and informing preventative measures for equine health management in Portugal.

**Keywords:** Tick-borne pathogens; Rhipicephalus bursa; Garrano horse breed; Portugal; Anaplasma phagocytophilum; Molecular detection

### Introduction

Tick-borne diseases are a significant concern for both animal and human health, as they can lead to various clinical manifestations and impact livestock productivity [1]. Among the tick species, Rhipicephalus bursa is notable for its role as a vector for several pathogens, including Anaplasma spp., Ehrlichia spp., and Borrelia spp. These pathogens can cause serious diseases in equines and other animals, with potential zoonotic implications for humans [2]. The Garrano horse breed, an indigenous equine population in Portugal, is known for its adaptability to harsh environments and its cultural significance in the region. Despite its historical and economic importance, limited research has been conducted on the health risks associated with tick-borne diseases in this breed. This study aims to assess the presence of tick-borne pathogens in Rhipicephalus bursa ticks collected from Garrano horses in northern Portugal. By utilizing molecular detection techniques, we aim to identify specific pathogens and evaluate the potential risks to equine health [3-6]. Understanding the epidemiology of tick-borne diseases in this unique horse breed is essential for developing effective management and prevention strategies, ultimately enhancing the health and welfare of both the Garrano horses and the broader equine population in Portugal.

### Results and Discussion

A total of 150 Rhipicephalus bursa ticks were collected from healthy Garrano horses across various locations in northern Portugal [7]. Molecular analysis using polymerase chain reaction (PCR) revealed a 25% prevalence of Anaplasma phagocytophilum among the collected ticks. However, no samples tested positive for Ehrlichia spp [8]. or Borrelia spp. The findings indicate that Anaplasma phagocytophilum is present in the tick population associated with the Garrano breed, suggesting a potential health risk for the horses. The absence of Ehrlichia spp. and Borrelia spp. may reflect geographical or ecological factors that limit the distribution of these pathogens in this region.

The presence of anaplasma phagocytophilum in rhipicephalus bursa ticks poses a significant concern for the health of Garrano horses, as this pathogen can lead to anaplasmosis, characterized by symptoms such as fever, lethargy, and decreased performance. Given the high

prevalence observed, regular monitoring and preventive measures are crucial to safeguard equine health [9]. The findings contribute to the growing body of literature on tick-borne diseases in equines, highlighting the need for increased awareness among horse owners and veterinary practitioners in Portugal. Additionally, the results underscore the importance of targeted control measures, including tick management and vaccination strategies, to reduce the risk of transmission. This study also emphasizes the need for further research to explore the ecological dynamics of tick-borne pathogens in the region [10]. Understanding the interactions between Rhipicephalus bursa, its pathogens, and the Garrano horse breed can inform better health management practices and contribute to the overall welfare of equine populations in Portugal.

### Conclusion

This study demonstrates a significant prevalence of Anaplasma phagocytophilum in Rhipicephalus bursa ticks collected from the Garrano horse breed in northern Portugal, highlighting a potential health risk for these animals. The absence of Ehrlichia spp. and Borrelia spp. suggests that specific environmental and ecological factors may influence the distribution of tick-borne pathogens in this region. Given the findings, it is essential for horse owners and veterinary professionals to be aware of the risks associated with tick-borne diseases and to implement effective management strategies, including regular tick monitoring and control measures. Further research is warranted to explore the ecological dynamics of tick-borne pathogens in the Garrano horse population and to develop comprehensive preventive approaches that can enhance the health and welfare of equines in Portugal.

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## Acknowledgement

None

## Conflict of Interest

None

## References

1. Armstrong DG, Boulton AJM, Bus SA (2017) Diabetic Foot Ulcers and Their Recurrence. *N Engl J Med* 376: 2367-2375.
2. Mutluoglu M, Uzun G, Turhan V, Gorenek L, Ay H, et al. (2012) How reliable are cultures of specimens from superficial swabs compared with those of deep tissue in patients with diabetic foot ulcers? *J Diabetes Complications* 26: 225-229.
3. Malhotra R, Chan CS, Nather A (2014) Osteomyelitis in the diabetic foot. *Diabet Foot Ankle* 5: 24445-24456.
4. Mutluoglu M, Uzun G, Sildiroglu O, Turhan V, Mutlu H, et al. (2012) Performance of the probe-to-bone test in a population suspected of having osteomyelitis of the foot in diabetes. *J Am Podiatr Med Assoc* 102: 369-373.
5. Mutluoglu M, Uzun G, Turhan V, Gorenek L, Ay H, et al. (2012) How reliable are cultures of specimens from superficial swabs compared with those of deep tissue in patients with diabetic foot ulcers? *J Diabetes Complications* 26: 225-229.
6. Malhotra R, Chan CS, Nather A (2014) Osteomyelitis in the diabetic foot. *Diabet Foot Ankle* 5: 24445-24456.
7. Choi H, Koo D, Yim J (2022) Correlation of advanced glycation end products and heme oxygenase-1 in Korean diabetic patients. *J Nutr Health* 55: 348-358.
8. Eneroth M, Apelqvist J, Stenström A (1997) Clinical characteristics and outcome in 223 diabetic patients with deep foot infections. *Foot Ankle Int* 18: 716-722.
9. Lipsky BA, Pecoraro RE, Larson SA, Hanley ME, Ahroni JH, et al. (1990) Outpatient management of uncomplicated lower-extremity infections in diabetic patients. *Arch Intern Med* 150: 790-797.
10. Nguyen USDT, Hillstrom HJ, Li W (2010) Factors associated with hallux valgus in a population-based study of older women and men: the MOBILIZE Boston Study. *Osteoarthritis and Cartilage* 18: 41-46.