



SEROLOGICAL SURVEY FOR *MYCOPLASMA HYOPNEUMONIAE* IN FREE-LIVING WILD BOARS FROM CAMPOS GERAIS REGION, PARANÁ, BRASIL

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INTRODUCTION

The south region of Brazil was responsible for 80.3% of total pork meat export in the country in 2015 (2), with the state of Paraná accountable for 21% of the total pork meat production in that year. Pig farming represented 5.7% of the agricultural gross income of the state in 2016, and the Campos Gerais region accounted for 13.2% of that amount (2). Wild boars are the result of crossbreeding between boars (*Sus scrofa scrofa*) and domestic pigs (*Sus scrofa domesticus*). The total population of free-living wild boars in Brazil is unknown (11), but sightings are common in the crop fields and near livestock farms of different regions of Paraná state, including in Campos Gerais (9). The health status of pig herds is important in terms of maintenance and growth of pork production and exports and there are evidences that domestic pigs and wild boars share vulnerabilities in certain viral and bacterial pathogen infections (12). *Mycoplasma hyopneumoniae* (Mhyo) is a bacterial pathogen that causes porcine enzootic pneumonia, an economically important disease that affects both domestic pigs and wild boars. Mhyo was first isolated in 1965, simultaneously in the United Kingdom (UK) and in the United States of America (USA) (3; 7). Economic losses related to this pathogen and mycoplasmal pneumonia in pig herds are associated with decreased feed efficiency, reduced average of the daily weight gain, and increased medication costs. Thus, knowing the health status of free-living wild boars in the regards of this pathogen is important for the biosecurity of the pork production. The aim of this study was to investigate antibodies against Mhyo in serum samples of free-living wild boars in Campos Gerais region.

MATERIALS AND METHODS

Serum samples included in this study originated from free-living wild boars that were hunted during May, 2017 in Campos Gerais region of Paraná state. The hunting was performed by exotic wildlife controller agents authorized by Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) (5), registered in the Federal Technical Register of Potentially Pollutive Activity (CTF/APP), and closely monitored by the Brazilian Army regarding the use of firearms in field activities (12).

A total of 20 sera were analyzed, of which eight were from adult (7 females and 1 male) and twelve from young (6 females and 6 males) wild boars. Animals were sampled during the bleeding, with the serum samples properly stored at -80°C. The presence of Mhyo antibodies in the wild boars serum samples was evaluated by an indirect ELISA commercial kit according to the manufacturer's instructions.

RESULTS AND DISCUSSION

Of the 20 serum samples evaluated, 19 (95%) were Mhyo seropositives (Figure 1). The unique anti-Mhyo antibody negative serum sample originated from an adult female wild boar. To the knowledge of the authors there are no serological Brazilian studies based on Mhyo infection, based on Mhyo Infection in free-living wild boars. On the other hand, there are detailed reports about this subject in other countries, including in Europe, where wild boars are endogenous population. In European countries, the reported seroprevalence for Mhyo antibodies in wild boars were 15.8% in Slovenia (14), 58% in France (8), 21% in Spain (13), 30% in Italy (1) and 52% in Russia (6). Although this survey was limited to a specific geographical region in Brazil, the high prevalences of anti-Mhyo antibodies in free-living wild boars are in agreement with other studies (1). It is known that Mhyo can be disseminated by air in a 9.2 km radius (10). In addition, the cost of uncomplicated Mhyo infection in pigs was determined in \$0.63 per head housed in grower-to-finish category during four years on a large US production (4). In this way, knowing the real health status of the population of free-living wild boars in the Campos Gerais region will contribute to more effective actions regarding biosecurity in commercial pig farms.

CONCLUSION

The free-living wild boar population in the Campos Gerais region of Paraná state is reservoir of Mhyo, and may contribute to the spread of the disease to domestic pork production in the region. Serological investigations are important for the epidemiological surveillance and monitoring of pathogens in the swine population.

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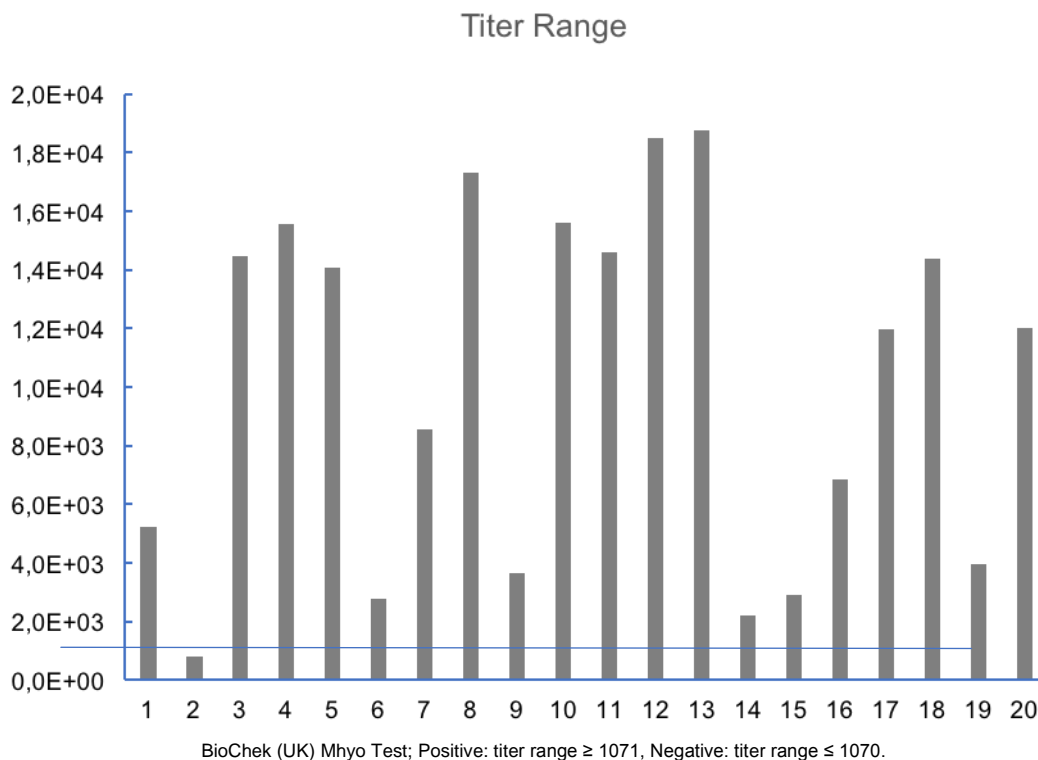


Figure 1. Antibody titers against *Mycoplasma hyopneumoniae* by the indirect ELISA in free-living wild boars from Campos Gerais region, Paraná state, Brazil.