RESUMO - ENTOMOLOGIA E ACAROLOGIA

SPATIAL DISTRIBUTION AND ABUNDANCE OF TICKS (IXODIDAE) IN WASTEWATER TREATMENT PLANTS IN THE FEDERAL DISTRICT, BRAZIL, BETWEEN 2024 AND 2025

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Tick-borne diseases (TBDs) represent a growing global public health challenge due to their zoonotic potential and clinical severity in humans, notably Brazilian Spotted Fever (BSF), which exhibits high lethality rates if not diagnosed early. In

the Federal District (DF), urban expansion into preservation areas promotes the interface between humans and wild fauna hosting these vectors. This study aimed to describe the population dynamics of ixodid ticks in four Wastewater Treatment Plants (WWTPs) in the DF — Santa Maria, Samambaia, Sobradinho, and São Sebastião — analyzing the influence of climatic variables on their life cycle in peri-urban ecosystems. The methodology consisted of three strategic monitoring cycles conducted between October 2024 and February 2025. Drag sampling and carbon dioxide (CO2) traps were utilized for capture, followed by laboratory taxonomic identification at Diretoria de Vigilância Ambiental em Saúde (DIVAL) and Fundação Oswaldo Cruz (FIOCRUZ) based on specific dichotomous keys. Environmental variables, including temperature and relative humidity (RH), were monitored in loco via digital thermo-hygrometer. A total of 187 specimens were collected, with an absolute dominance of the genus Amblyomma (98.93%). The results evidenced a population dynamic strictly modulated by regional seasonality: during the transition period (October), immature stages (larvae and nymphs) prevailed, while the rainy season (December to February) concentrated the peak of adults (70.05%), which exhibit intensified questing behavior. The species Amblyomma sculptum predominated in 93.58% of the samples, followed by Amblyomma dubitatum (5.35%). Vector abundance directly correlated with the presence of capybaras (Hydrochoerus hydrochaeris), dogs, and horses near the stations. The originality of this work lies in the investigation of these specific sanitation units, where occupational risk is critical due to the continuous exposure of workers. It is concluded that the significant circulation of medically relevant vectors reinforces the eco-epidemiological character of WWTPs as sentinel points. These findings open perspectives for creating environmental management protocols and active surveillance to mitigate zoonotic risks in the peri-urban scenario of the Federal District.

Palavras-chave: public health; seasonality; amblyomma sculptum; occupational risk.