

Title: First Report of ESBL-Producing *Escherichia coli* in Wild Birds in Piauí, Brazil

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The use, misuse and overuse of antimicrobials is recognized by the World Health Organization (WHO) as one of the main public health threats of the 21st century, due to health and economic consequences. Wild birds may be used as sentinels of antimicrobial resistance (AMR) through a One Health lens. The aim of our work was to investigate the presence of extended spectrum beta-lactamase (ESBL)-producing bacteria, considered of critical priority by WHO, in feces of wild birds in the State of Piauí, Brazil. Piauí is one of the lowest income states in Brazil, with great challenges in terms of access to basic sanitation, potable water, and medical and veterinary assistance. A total of 89 wild birds, comprising 41 species, were captured with mist nets in each of the five studied municipalities: Amarante (n=18), Água Branca (n=17), Lagoa Alegre (n=15), Parnaíba (n=14) and Teresina (n=25). One fecal sample, collected from each captured bird, was individually streaked and incubated onto MacConkey agar plates supplemented with ceftriaxone (2mg/L). ESBL production was screened by the double-disc synergy test (DDST) followed by PCR testing using the *bla*CTX-M primer. We found three (3.37%) samples presenting the ESBL profile in the DDST: Great kiskadee (*Pitangus sulphuratus*), a common Latin American bird, in Água Branca and two specimens of semipalmated sandpiper (*Calidris pusilla*), a migratory bird considered Near Threatened by the IUCN Red List, captured in Parnaíba. All samples were identified by MALDI-TOF as *Escherichia coli* and were resistant to ceftriaxone, cefotaxime and ceftiofur. One sample was positive by the PCR test and the others will be tested in the future for other genes. The presence of wild birds colonized by ESBL-producing *E. coli* is a hypothetical public and environmental health issue. Many studies have correlated AMR and anthropogenic pressure and showed that migratory birds can acquire antimicrobial resistance genes (ARGs) from several epidemiological scenarios within the One Health interface. Nevertheless, wild birds have not been confirmed yet as reservoirs or disseminators of ARGs. This is the first report of ESBL-producing *E. coli* in wild birds in Piauí, emphasizing the need for continued monitoring in order to shed light on potential epidemiological routes and hypothetical risks to local animal and human populations.

Keywords: Antibiotic resistance, Northeast, Wildlife

Development Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Fundação de Amparo à Pesquisa do Estado do Piauí (FAPEPI), Institute for Conservation Medicine - Saint Louis Zoo and Zebra Foundation for Veterinary Zoological Education.