SHIGA TOXIN-PRODUCING ESCHERICHIA COLI (STEC) IN PSITTACINE BIRDS: MOLECULAR CHARACTERIZATION, PHYLOGENETIC ANALYSIS AND ANTIMICROBIAL SUSCEPTIBILITY

GIOIA-DI CHIACCHIO, R.M.[1], CUNHA, M.P.V.[1], PEREIRA, C.B.P.[2], MARTINS, F.H.[2], FRANZOLIN, M.R.[2], PIAZZA, R.M.F.[2], GÓRNIAK, S.L.[1], KNÖBL, T.[1]

[1]FMVZ-USP – Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo - Pathology Department (Av. Orlando Marques de Paiva 87 - 05508-270, São Paulo, SP); [2]Instituto Butantan - Bacteriology Laboratory (Avenida Vital Brazil, 1500 - 05503-900, São Paulo, SP).

Among the psittacidae bred as pets, the cockatiels (*Nymphicus hollandicus*), agapornis (*Agapornis* spp.), and budgerigars (*Melopsittacus undulatus*) stand out, because they keep people company, and have a colorful plumage, although the zoonotic risks are little known. *Escherichia coli* (*E. coli*) is a facultative anaerobic Gram-negative bacterium belonging to the Enterobacteriaceae family. Some *E. coli* pathotypes are considered as diarrheagenic, and the molecular techniques are useful in identifying the genetic traits of virulence. The agent does not belong to the microbiota of psittacidae. The objective of this study was to research the presence of STEC (diarrheagenic Shiga toxin-producing *E. coli*) in the feces from cockatiels, budgerigars, and agapornis. 171 feces samples of birds living in the city of São Paulo were collected with the help of sterile swabs, with 67 of them being of cockatiels, 59 of budgerigars, and 45 of agapornis. The material was transported to the laboratory under refrigeration, then cultured and identified. 42 *E. coli* colonies were isolated and researched for genes *eae*, *stx*1, and *stx*2 through PCR. In the strains identified as STEC, the antimicrobial resistance profile was determined through the disc diffusion method and phylogenetic analysis, according to the new Clermont phylotyping method, which classifies the strains into groups: A, B1, B2, C, D, E and F. The results classified 8/42 (19.4%) strains as STEC, positive for genes *eae* and *stx*2, with three being isolated from cockatiels (3/48) and five from budgerigars (5/35). The results revealed a 4.6% frequency of STEC (8/171), with a percentage of 8.47% in budgerigars (5/59), 4.47% in cockatiels (3/67), and 0% in agapornis (0/45). Most of the strains were classified as sensitive to the 18 tested antibiotics, belonging to eight different classes. Among the cockatiel isolates, only one Sulfamethoxazole-trimethoprim-resistant strain was observed. The budgerigar isolates were resistant to Ceftiofur (1/5), Sulfamethazine (1/5), Tetracycline (1/5), and Streptomycin (1/5). No multiresistance profile was observed. In the phylogenetic analysis, 2/8 were classified as non-typeable, 3/8 as B2, 2/8 as F, and 1/8 as Clade I. Strains having genotypic profile *stx*2 + *eae* are usually associated with severe diseases of human, such as hemorrhagic colitis and hemolytic-uremic syndrome. The STEC-positive results indicate the zoonotic risk related to the breeding of psittacidae in home environments.

Keywords: *Escherichia coli*, STEC, Psittacidae, Zoonosis.

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