

**Title: Molecular and biochemists studies of *Escherichia coli* from emas (*Rhea americana*)**

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abstract:

*Rhea (Rhea americana)*, also known in Brazilian as “emas” belong to ratite family and are strictly terrestrial birds. The International Committee of Animal Species Trafficking in extinction (CITEAE) considers this species at risk of extinction. For this reason in Brazil these birds are controlled by the IBAMA: hunting is not permitted, but breeding for commercial or conservation purposes is legal. The commercial exploration of rheas represents an alternative for agribusiness considering the variety of products that can be obtained, such as eggs, feathers, leather and meat. Since the breeding of emas has been considered an efficient activity, supported by sustainable practices, microbiological monitoring of animals is an important measure. These birds can be colonized by drug-resistant bacteria which may be relevant from environmental, economic and health points of view. 82 samples from cloaca, oropharyngeal cavity, and feces were collected from animals bred in the Southeastern region of Brazil. From these samples we isolated 86 strains of *Escherichia coli*. Antimicrobial profile of isolated strains showed 26 strains (30,23%) presenting intermediary resistance against antibiotics. To study pathogenicity genes, all *E. coli* samples were submitted to conventional PCR analyses for the detection of *bfpa*, *eae* and *stx* genes.. 11,6% (10/85) of the samples were positive for *eae* gene. No sample was positive for the *bfpa* and *stx* genes, classifying the bacteria we found, as atypical enteropathogenic. This is the first study describing the presence of genes associated to pathogenicity in *E. coli* isolated from rheas. Our results show, this species of birds can carry important pathogenic bacteria, with a significant prevalence of antibiotic resistant strains that might evolve in future into multidrug resistance. *E. coli* samples displaying pathogenicity profiles (antibiotics resistance and *eae* gene presence) we observed in the analyzed samples, may represent a risk to the health of both animals and humans that enter in contact with emas or the environment where they live.

Key words: *Escherichia coli*, Bacterial resistance, EPEC, Virulence genes.

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