

TITLE: DETECTION OF COLISTIN RESISTANCE GENE *mcr-9* ON AN ENTEROBACTERIALES STRAIN ISOLATED FROM A WILDLIFE BIRD (*Psittacara leucophthalmus*)

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ABSTRACT:

Mobilized colistin resistance (*mcr*) are plasmid-borne genes varying from *mcr-1* to *mcr-10*. They are part of the MCR-family that have already been detected in many countries and are closely related to poultry production. In recent years, despite its toxicity that restricts its use in clinical settings, the use of colistin has become increasingly important as it is the last resort for treating multidrug resistant Gram-negative bacterial infections. In this scenario, the spread of *mcr* genes, and the consequent increase of resistance to colistin, represents a Public Health threat and a One Health issue. Free-living birds have been highly affected by the loss of their habitats due to deforestation and large-scale urbanization. Although, they are even closer to humans and their companion animals, little is known about the contribution of this proximity to the circulation and spread of resistance genes. The present study aimed to evaluate the presence of *mcr* genes on strains isolated from 24 cloacal samples collected from healthy *Psittacara leucophthalmus*, a common and abundant species of parrot in Brazil. A total of 38 strains of the order Enterobacterales were isolated, phenotypically characterized and identified, and also analyzed by the MALDI-TOF technique. Research of MCR-family genes (*mcr-1* to *mcr-9*) by PCR revealed that a *Pantoea dispersa* strain presented the *mcr-9* gene that, like *mcr-1*, is an important determinant of global dissemination of colistin resistance. Furthermore, it is a plant-associated bacteria that is also implicated in neonatal sepsis, respiratory and bloodstream infections in humans. Thus, those results reinforce the need to monitor the dissemination of colistin-resistant genes in the environment in order to understand its dynamic and implement safety protocols to contain its spread.

KEYWORDS: Antimicrobial Resistance; *mcr-9* gene; One Health and Wild Animals.

DEVELOPMENT AGENCY: FAPERJ