Resistant patterns of Enterobacter cloacae and Escherichia coli from wildlife seabird populations in a Brazilian Arquipelago

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**Resumo:**

The aim of the present study was to investigate antimicrobial resistance traits in commensal Enterobacter cloacae and Escherichia coli from non-migratory wildlife seabird populations in the Fernando de Noronha Archipelago. Escherichia coli and Enterobacter cloacae were cultured from three seabirds species: White-tailed tropic bird (Phaethon lepturus), Red-billed tropic bird (Phaethon aethereus) and Audubon's shearwater (Puffinus lherminieri) and the minimum inhibitory concentration (MIC) was determined by microdilution test using a semi-automated system (Autoscan4, Siemens). Enterobacter cloacae isolates (n=9) were most resistant against cephalotin (100%), ampicillin (88%), ampicillin/sulbactam (77%), cefuroxin (66,6%), cefotaxime/clavulanate K (66,6%), aztreonam (44,4%) and nitrofurantoin (44%), ceftriaxone (22%), and piperacillin alone or associated with tazobactam (22%). Pan-susceptibility was observed for amikacin, ciprofloxacin, ertapenem, imipenem, gentamicin, meropenem, levofloxacin, trimethoprim-sulfamethoxazole, tetracycline, tobramycin, cefotetam, cefepime, ceftazidime and tigecycline. Considering the E. coli isolates (n=10), all of them were resistant against cephalotin. Pan-susceptibility was observed against all other tested drugs. Although commensal Enterobacter cloacae isolates showed a higher antimicrobial resistance rate compared to Escherichia coli organisms from the investigated wildlife seabird populations, most of the observed resistance was associated with beta-lactams only. Factors linked to the high resistance of Enterobacter cloacae, especially possible intrinsic resistance against extended spectrum beta-lactams, such as piperacillin, must be investigated. This is important considering the seabird populations sampled in the present study are kept apart from humans and there are no reports of direct contact between these birds and domestic animals in the archipelago. Moreover, touristic visitation or even inhabitants are not allowed in some of the islands were the birds were captured. Therefore, further investigations towards the understanding of the mechanisms associated with the antimicrobial resistance in commensal Enterobacter cloacae species in the absence of antibiotic exposure could provide important information on the evolving and spreading of resistance amongst human and animal pathogens. Acknowledgements: Fapesp; CNPq; ICMBio; CEMAVE; Fire Department; PARNAMAR, APA and Administration of Fernando de Noronha.

**Palavras-chaves:** antimicrobial resistance, Enterobacter cloacae, Escherichia coli, wildlife birds

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