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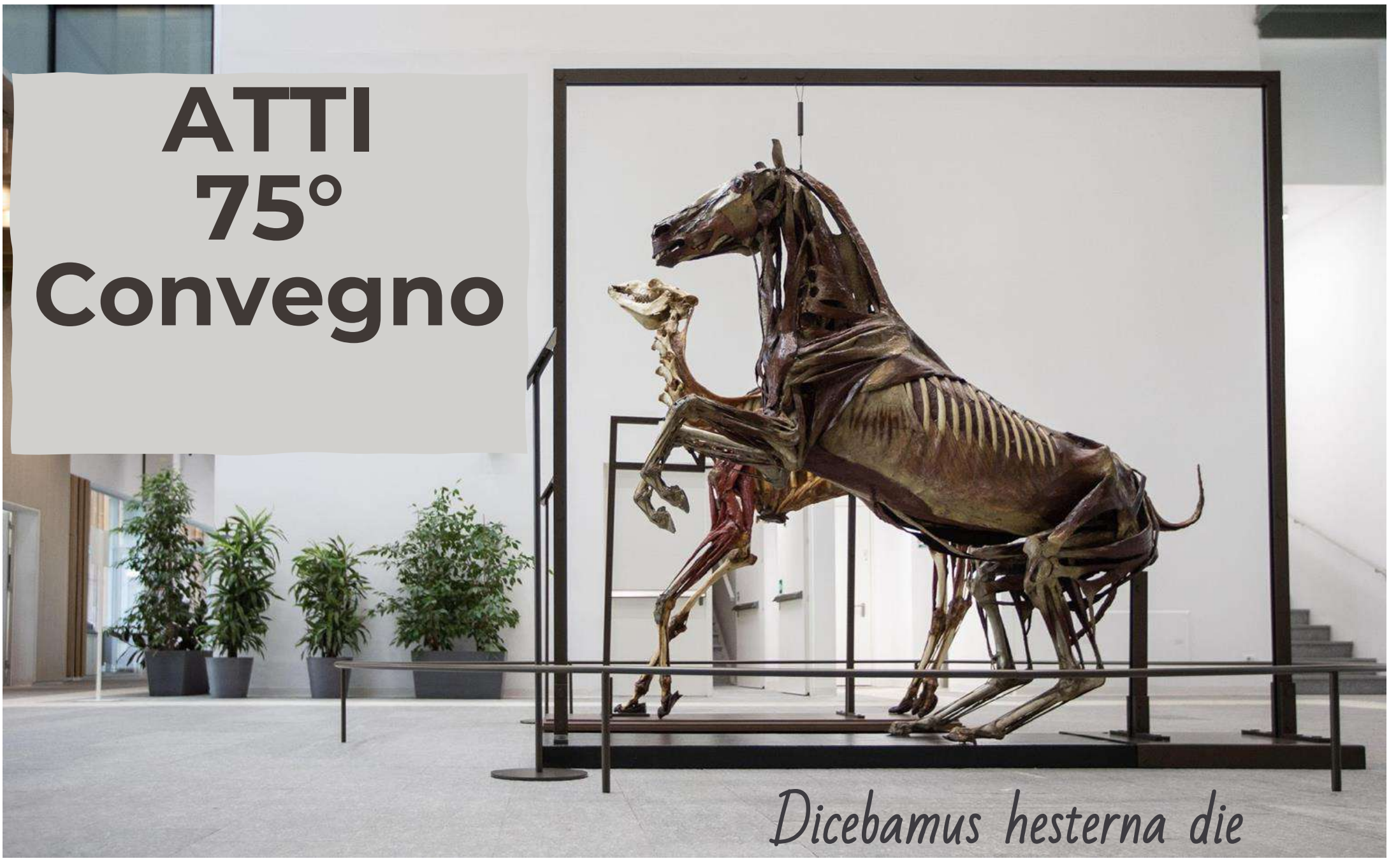

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ANTIMICROBIAL RESISTANT ACINETOBACTER SPECIES IN WILD BIRDS

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Acinetobacter species belonging to the *Acinetobacter calcoaceticus-Acinetobacter baumannii* (ACB) and not-ACB complex have become of particular concern in veterinary and human medicine because of their antimicrobial resistance phenotypes and their involvement in case of coinfection with the pandemic SARS-CoV-2 [1, 2]. As wildlife is still overlooked in the epidemiology of medical important antibiotic-resistant bacteria, two free-ranging populations of Scarlet macaw (*Ara macao cyanoptera*) in Guatemala (n=10) and Belize (n=15) and a rescued group of Yellow-headed amazon (*Amazona oratrix belizensis*) in Belize (n=15) were sampled to investigate the epidemiological role in AMR *Acinetobacter* species spreading.

Faecal samples (n=16), cloacal (n=34) and choanal swabs (n=14) were collected and cultured for *Acinetobacter* spp. isolation. Colonies were identified at level species (bioscore >2.300) by matrix assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS: SOP Direct Transfer Procedure Revision.4; Bruker Daltonics, Germany). Susceptibility to a panel of 17 human and veterinary antibiotics, belonging to 11 different categories (aminoglycosides, penicillins, antipseudomonal penicillins+β-lactamase inhibitors, 1st 2nd 3rd and 4th generation cephalosporins, antipseudomonal fluoroquinolones, antipseudomonal carbapenems, monobactams, tetracyclines, macrolides, folate pathway inhibitors, polimixins), was assessed by Kirby-Bauer and MIC (E-test) methods, according to the EUCAST guidelines [3]. Data were analyzed using Chi Squared (STATA 13.0). In wild birds, 30 different bacterial species (n=218) were isolated, 67.4% belonging to Gram positive (n=147) and 32.6% to Gram negative (n=71). The family *Moraxellaceae* (4.2%, n=71) was represented by *Acinetobacter* spp. strains, cultured from choanae (P=0.0001). Members of ACB-complex (*A. dijkshoorniae*) accounted for 33.3% of isolates and not ACB-complex strains (*A. haemolyticus*) for 66.7%. While not ACB-complex strains resulted sensitive to all antibacterial categories tested, the AMR strains were significantly represented in ACB-complex (P<0.0001). In particular, according to Magiorakos et al. [4], *A. dijkshoorniae* resulted multidrug-resistant (MDR), showing a 100% of resistance to penicillins, penicillins+β-lactamase inhibitors, 1st, 2nd, 3rd generation but not to 4th generation cephalosporins, carbapenems, monobactams, tetracyclines, and macrolides.

These findings suggest that Scarlet macaw and Yellow-headed amazon populations can harbour *Acinetobacter* spp. members and not member of ACB-complex. Wild birds could act as carriers of MDR *Acinetobacter* strains, spreaders in the environment, and vectors of AMR as secondary sources of AMR for humans and other animals, representing sentinels mirroring the presence of AMR in human and animal influenced-environment.

[1] Nocera F.P. et al. *Acinetobacter baumannii*: Its Clinical Significance in Human and Veterinary Medicine. Pathogens, 10: 127, 2021.

[2] Rangel K. et al. *Acinetobacter baumannii* Infections in Times of COVID-19 Pandemic. Pathogens, 10: 1006, 2021.

[3] EUCAST clinical breakpoints v.12.0, 2022 (http://www.eucast.org).

[4] Magiorakos A-P et al. Multidrug-resistant, extensively drug-resistant and pandrug-resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance. Clinical Microbiology Infection, 18: 268-281, 2012.