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Immune function and Coronavirus prevalence in straw-coloured fruit bats (*Eidolon helvum*) at the Human-bat Interface in Nigeria

Inhalt

Straw-coloured fruit bat (*Eidolon helvum*) is a widely distributed African tropical bat species. They are a known reservoir for coronaviruses and well-adapted to anthropogenic environments, both in urban and rural areas. Despite their reservoir role, there is lack of information how anthropogenic activities could influence bat physiology and viral shedding. In this study we investigated the immunological and coronavirus prevalence differences between urban and rural environments in Nigeria. We measured innate and adaptive humoral and cellular immune makers, and calculated stress parameters such as Neutrophil-to-Lymphocyte Ratio (NLR) and Systemic Inflammation Response Index (SIRI). We found that basophil and eosinophil levels are higher in the urban environment, triggered by the habitat rather than the sex or coronavirus status. Similar results were found for immunoglobulin G, lysozyme and body condition, with urban bats showing higher values than rural conspecifics. The other parameters measured were not associated with the environment, NLR and SIRI tended to be higher in females. Furthermore, we also found higher coronavirus prevalence in the urban bats. Our study suggests that urbanization contributes to alteration in immune function and the coronavirus prevalence in *Eidolon helvum* have higher significant in the urban environment. This pattern also suggest that human activities, resources and high population density could be important factor in *Eidolon helvum* physiology.

Keywords

Urban, Rural, Lysozyme, Neutrophil, *Eidolon helvum*

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Professional Status of the Speaker

PhD Student

Junior Scientist Status

Yes, I am a Junior Scientist.

Autor: NGENE, Chinedu I. (Leibniz Institute for Zoo and Wildlife Research Berlin. Free University Berlin, Germany)

Co-Autoren: Dr. REYNE, Marina (Leibniz Institute for Zoo and Wildlife Research Berlin, Germany); Dr. CZIRJÁK, Gábor Á. (Leibniz Institute for Zoo and Wildlife Research Berlin, Germany); Prof. HELGEN, Kristofer M. (Australian Museum, Australia); Dr. ADEYANJU, Temidayo (BatLife, Nigeria); Dr. ADEYANJU, Taiye (University of Ibadan, Nigeria); Prof. GREENWOOD, Alex D. (Leibniz Institute for Zoo and Wildlife Research Berlin, Germany. Free University Berlin, Germany)

Vortragende(r): NGENE, Chinedu I. (Leibniz Institute for Zoo and Wildlife Research Berlin. Free University Berlin, Germany)

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Eingereicht von **NGENE, Chinedu Innocent** <ngene@izw-berlin.de> am **Montag, 22. Juni 2026**