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Characterization of Anti-microbial Properties of Excrement and Functional Microbiome of New World Vultures in Alabama

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Characterization of anti-microbial properties of excrement and functional microbiome of new world vultures in Alabama

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Two distinct species of New World vultures are native to North America and inhabit Alabama, black vultures (*Coragyps atratus*) and turkey vultures (*Cathartes aura*). They are scavengers that consume decaying carcasses or carrion, which helps reduce the spread of disease. Vultures are susceptible to declining population numbers as they have been trapped and killed due to the belief that they spread disease, additionally contact with poisons and habitat destruction have also led to their decline. Currently, these two vultures are one of the seven vulture species with least concern and stable in Alabama and the world. However, it is important to remember current threats to these vultures exist. It has been observed that vultures will sometimes excrete waste onto their legs. There are two ideas behind this behavior, one is urohidrosis and the other is microbial control. The second idea of microbe control has not been directly studied or tested experimentally. To test this proposed question, we will collect fecal samples from both black vultures and turkey vultures. Antimicrobial properties of both species' excrement will be tested by a Kirby-Bauer test, both from live and heat killed excrement samples. The samples will be screened against 10 bacterial species as well as *C. elegans* and zone of inhibitions for each will be measured. Microbiome analysis will also be examined with fresh excrement samples through 16S ribosomal RNA sequencing. This study proposes to gain a better understanding of how these scavengers evolved to consume carrion, as it is important to understand their biology, health, and status. We plan to examine the antimicrobial properties of vulture excrement and the microbiome of black vultures and turkey vultures in the Alabama area.