

**TITLE:** LIPODEPENDENT *Malassezia* IS PART OF THE EXTERNAL EAR CANAL MICROBIOME OF FREE-RANGING GIANT ANTEATERS (*Myrmecophaga tridactyla*)

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**ABSTRACT:**

The giant anteater (*Myrmecophaga tridactyla*) is considered *VU-Vulnerable by the Red List of Threatened Species World Conservation Union (IUCN)*. Biological samples, collected for this study, were obtained from animals captured along the highways MS-040, BR-262 and BR-267, Campo Grande, MS, as a part of a long term conservation project -Bandeiras e Rodovias-, created to implement conservation initiatives. There are few studies focusing on diseases that affect anteaters and their microbiome. *Malassezia* sp is found on the skin microbiome of homeothermic animals and humans; however, when an imbalance with the host occurs it can cause infections, particularly otitis and dermatitis. All *Malassezia* species are lipid dependent, with the exception of *M. pachydermatis*, which is the zoophilic species. Data about the presence of this fungus in wildlife are still scarce, particularly in free-ranging animals. The aim of this study was to investigate the presence of *Malassezia* sp in the external ear canal of giant anteaters. Twenty-eight animals were sampled and 56 cerumen swabs (two of each individual) from the right and left ears were collected. Samples were obtained by the introduction of sterile swabs in the external ear canals, seeded on Dixon's medium and then incubated for up to 2 weeks at 32°C. The isolates obtained on Dixon's medium were inoculated on Sabouraud dextrose agar and cultures that grew on Dixon's medium but not on Sabouraud dextrose agar were considered to be lipodependent. For genus confirmation DNA was extracted and 26S rDNA was amplified through PCR technique. *Malassezia* sp was isolated from 82.1% (23/28) of the giant anteaters and 69.6% (39/56) of the cerumen samples. Lipodependent *Malassezia* represented 89.7% (35/39) of the strains. It should be emphasized that only 10.3% (4/39) of the strains were *M. pachydermatis*, which is normally reported in the microbiome or in cases of infection in animals. The low percentage of lipodependent *Malassezia* isolated from animals reported in the literature may in fact be reflecting technical failures, since the veterinary diagnostic laboratories do not use culture media supplemented with lipids, thus allowing only the detection of *M. pachydermatis* and producing false-negative results. Results of this research indicate that lipodependent *Malassezia* is part of the external ear canal microbiome of free-ranging giant anteaters.

**Keywords:** external ear canal, giant anteater, *Malassezia* sp, microbiome, *Myrmecophaga tridactyla*

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\* Scientific Initiation