

**TITLE:** TRAQUEAL AND PULMONARY MYCOBIOTA OF PIGEONS (*Columba livia*) CAPTURED IN A GRAIN MILL

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## **ABSTRACT**

Respiratory diseases are commonly related with grain mills in association with fungi, and pigeons (*Columba livia*) are a potential source of pathogenic fungi and a public health concern, causing economic damages in urban areas. This study aimed to determine the tracheal and pulmonary mycobiota of pigeons of a grain mill, identifying potentially pathogenic fungi. Pigeons were captured and euthanized using intravenous overdose of thiopental (40 mg/kg<sup>-1</sup>) for collection of tracheal secretion with a sterile cervical brush after an incision in the medial portion, while lungs were extracted after incisions in the dorsal portion. Each lung was evaluated by 2 methods: (1) Lung fragments were inoculated directly on the Sabouraud dextrose agar with chloramphenicol at 5 points; (2) Lung fragment was macerated with a sterile swab in a microtube with sterile saline (1 ml) and mixed by vortexing (1 min), and right and left lung lobes were evaluated separately. 100 µL of the tracheal and pulmonary suspensions were cultivated individually on SDC agar (48h; 28-32°C) and colonies were subcultivated on potato-dextrose-agar to obtain pure cultures. Yeasts were evaluated after Gram stain in light microscopy and cultured in Hicrome<sup>®</sup> *Candida* Differential Agar, while lactophenol cotton blue solution was used in filamentous fungi (1600x). Mycological identification keys were used for genus determination. A total of 207 fungi were isolated from tracheal secretion and lungs of 21 pigeons, of which 199 were filamentous fungi (96%) and 8 yeasts (4%), mainly in lungs. *Aspergillus* sp., *Rhizopus* sp. and *Penicillium* sp. were the most prevalent, followed by *Absidia* sp., *Candida* sp., *Paecilomyces* sp., *Chrysosporium* sp., *Neurospora* sp. and *Geotrichum* sp. Except for *Neurospora*, the remaining fungi are potentially pathogenic to humans and animals, with emphasis on *Aspergillus* sp., which is common in opportunistic infections in birds and associated with grain dust exposure, while *Candida* spp. is the causal agent of candidiasis, mainly in immunocompromised, with a high zoonotic potential. The results reported here suggest that the fungi identified in the respiratory tract of the pigeons may have originated from grain dust stored in the mill, however, complementary studies on this need to be carried out, however, at the same time, our results reinforce the need for innovative scientific research incentives that addresses the ecoepidemiology of opportunistic avian mycosis in the state of Alagoas.

**Key-words:** filamentous fungi; mycobiota; pigeons; *Aspergillus*; *Candida*.