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MICOLOGIA

PRELIMINARY SURVEY ABOUT THE DIFFUSION OF ASPERGILLUS FUMIGATUS IN UMBRIAN POULTRY FARMS

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INTRODUZIONE

Aspergillus (A.) fumigatus is an ubiquitous mold belonging to iphomycetes, potentially responsible for deep mycoses in both humans and animals. In particular, in human medicine it is considered among the main causes of bronchopulmonary allergic aspergillosis (ABPA). In veterinary medicine, it is associated with deep fungal infections especially in birds. In poultry farms, characterized by hot-humid and often overcrowded environments, there may be a proliferation of the fungus with possible risk of contamination for animals and also for operators. A preliminary survey about the diffusion of A. fumigatus in some Umbrian poultry farms is described; it is a part of a current research funded by the Ministry of Health for the period 2018-2020.

METODI

Object of the investigation are n.15 Umbrian poultry farms, of which only one that can be considered rural. In each farm, starting from April 2019, monthly surveys are carried out in order to sample the following specimens: dead chickens (with or without pathological history), litter, superficial swabs, indoor air, feed, soil adjacent to the sheds and nasal swabs of farm staff. These samples are subjected to mycological tests, which include: sowing on Sabouraud Dextrose agar and Dichloran Rose Bengal agar at 25 ± 1°C for 5-7 days, observation of the macro- and microscopical features of the developed colonies, confirmation by PCR and sequencing for those related to A. fumigatus, as well as evaluation of the sensitivity towards the most common antifungal drugs through the minimum inhibitory concentration (MIC) method.

RISULTATI

The investigations already carried out have given positive results for n.10 farms, highlighting the presence of colonies macro- and microscopically referable to Aspergillus spp., including A. fumigatus, grown in about 48-72 hours, with a velvety surface, color from moss green to bright, white peripheral halo and cream-colored bottom. At light microscope, these colonies show the presence of typical structures of the genus. The molecular investigations show an identity of 100% with A. fumigatus and the isolated strains are all resistant to 5-Fluorocytosine, Amphotericin B and Fluconazole.

CONCLUSIONI

Although preliminary, the results obtained show that A. fumigatus is particularly diffusible in contexts where there is a presence of environmental conditions favorable the survival, proliferation and dissemination of conidia. The isolation of the fungus also from the human samples, even in the absence of respiratory symptoms, is a significant result, especially by the risk for the involved staff point of view. Further sampling provided by the research program will allow to better define the diffusion of A. fumigatus in the farming contexts considered.