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P731

Effects of fungal contamination on respiratory symptoms of poultry workers

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Moulds are considered central elements in daily exposure of poultry workers and can be the cause of an increased risk of occupational respiratory diseases, like allergic and non-allergic rhinitis and asthma. The objective is to evaluate the exposure to different species of moulds in poultries and relate them with respiratory symptoms in poultry workers. Seven Portuguese poultries were analyzed in order to assess air fungal contamination, as well as to evaluate the existence of clinical symptoms associated with asthma and other allergy diseases by European Community Respiratory Health Survey questionnaire. Twenty seven air samples of 25 l were collected through impaction method. Air sampling was performed in pavilions' interior and also outside premises. Regarding fungal load in the air from the seven poultry farms, the highest

value obtained was 24040 CFU m⁻³ and the lowest was 320 CFU m⁻³. Twenty eight species / genera of fungi were identified, being *Scopulariopsis brevicaulis* (39%) the most commonly isolated species and *Rhizopus* sp. (30%) the most commonly isolated genus. From the *Aspergillus* genus, *Aspergillus flavus* (74.5%) was the most frequently detected species. Forty seven workers were analyzed, with ages ranging from 17 to 71 years old. The prevalence of asthma and rhinitis were 6.4% and 17%, respectively. Some of these workers reported the first attack of asthma (66.6%) or rhinitis (42.9%) during the adult age, which may have been developed by occupational exposure. A high prevalence of respiratory symptoms in professionals without respiratory disease was observed, namely wheezing (22.7%), night attacks of cough (31.8%) and sneezing or runny nose without having a cold or flu (17.9%), suggesting an under diagnosed respiratory problem. It wasn't possible to prove the existence of a statistically significant association between working in poultries and the presence of asthma or rhinitis, or their relationship with the number of CFU m⁻³. However, who has rhinitis is exposed to a higher number of CFU m⁻³. Our results are in line with previous findings suggestive of the "healthy worker effect" in population occupationally exposed to respiratory and skin hazards, including allergens such as fungi. However, and because the high prevalence of respiratory symptoms, the implementation of specific programs that address respiratory protection for all workers involved in poultry farming is recommended.