

EFFECTS OF FUNGAL CONTAMINATION ON RESPIRATORY SYMPTOMS OF POULTRY WORKERS

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BACKGROUND AND OBJECTIVES

Exposure to certain fungi (molds) can cause human illness by 3 specific mechanisms: generation of a harmful immune response, direct infection by the organism or/and toxic-irritant effects from mold byproducts¹.

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 asthma².

Evaluate the exposure to different species of moulds in poultries and relate them with respiratory symptoms in poultry workers.



MATERIAL AND METHODS

Study: Descriptive, qualitative approach, cross-sectional

Sample:

- ✦ 7 Portuguese poultries with 47 workers were analyzed
- ✦ 27 air samples of 25 litters were collected through impaction method

Instruments for data collection:

- . European Community Respiratory Health Survey questionnaire³ to evaluate the existence of clinical symptoms associated with asthma and other allergy diseases;
- . Air sampling were collected through impaction method and was performed in pavilions' interior and also outside premises, since this was the place regarded as reference.

RESULTS

Regarding fungal load in the air from the seven poultry farms:

the highest value obtained was 24040 CFU/m³ and the lowest was 320 CFU/m³

Table I. Quantification of the fungal air load in the seven poultries studied

Poultry farm	Nº	Highest value CFU/m ³	Lowest value CFU/m ³	Mean value CFU/m ³
1	3	3680	880	1603,3
2	1	4040	4040	4040
3	3	2520	640	1586,6
4	3	1000	320	706,6
5	4	24040	1280	14350
6	3	3600	2000	2540
7	2	8120	2520	5320



Twenty eight species/genera of fungi were identified, being:

- ✓ *Scopulariopsis brevicaulis* (39%) the most commonly isolated species
- ✓ *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.

This sample included 31 (66%) men and 16 (34%) women with a mean age of 44 ± 12 years old.

Prevalence of asthma
6.4%

Prevalence of rhinitis
17%

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.

These workers have an active asthma/rhinitis, since it were reported acute attacks in the last 12 months.

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 problems.

Some of the inquired workers (27.7%) refer an improvement of their respiratory ability, during the resting days and holiday.

There's no existence of a statistically significant association between:
working in poultries and the presence of asthma/rhinitis
or their relationship with the number of CFU/m³



However, who has rhinitis is exposed to a higher number of CFU/m³

CONCLUSIONS

Our results are in line with previous findings suggestive of the "healthy worker effect" in population occupationally exposed to respiratory hazards, including allergens such as fungi¹. The effects of fungal contamination on respiratory symptoms could be even more expressive, if there weren't a high turnover of the workers. Due to the high prevalence of respiratory symptoms, the implementation of specific programs that address respiratory protection for all workers involved in poultry farming is recommended.

REFERENCES

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