

## SHORT COMMUNICATION

### ISOLATION OF *CRYPTOCOCCUS NEOFORMANS*, *CANDIDA ALBICANS* AND OTHER YEASTS FROM PIGEON DROPPINGS IN EGYPT

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Two hundred pigeon droppings, unmixed with soil, and collected from various provinces in lower Egypt (Delta) were cultured to detect yeasts. Yeasts were isolated from 53.5% of the samples; *Cryptococcus neoformans* was recovered from 30 samples and *Candida albicans* from 19 samples. Other *Cryptococcus* and *Candida* species as well as species of *Torulopsis* and *Rhodotorula* were also encountered. *Aspergillus fumigatus* was isolated on 13 occasions.

This paper reports the first search for *Cryptococcus neoformans* in pigeon droppings in Egypt; however, all other yeasts that were isolated from the droppings are also reported.

Two hundred samples of pigeon droppings were collected from various provinces in lower Egypt (Delta), mostly from pigeon coops and nests, from the roofs of private dwellings, from the Dokki Hunting Club and from food markets.

From each sample 5 g were suspended in 30 ml 0.15M saline containing 2 mg streptomycin and 500 I.U. penicillin ml<sup>-1</sup>. The tubes were shaken vigorously and allowed to stand for 15 min. From the supernatant fluid two plates of Sabouraud dextrose agar with chloramphenicol (125 mg l<sup>-1</sup>) were streaked and incubated at 26 °C for 72 h.

The isolated yeasts were identified by cultivation on rice agar and microscopic examination, then by tests for fermentation and assimilation of sugar and nitrates, the urease test, and production of a brown colour effect on *Guizotia abyssinica* creatinine medium after Staib [8]. For *Cr. neoformans* isolates, capsules were demonstrated by mouse inoculation.

Yeasts were recovered from 107 samples. Although some isolates were accompanied by moulds, most yeasts were isolated in pure culture. The highest prevalence was in Giza (73.3%) followed by Cairo (59.1%), Kafr El-Sheikh (53.8%), Tanta (44%), Alexandria (36.8%) and Banha (28.5%).

The isolated yeasts were identified as *Cryptococcus* spp. (43 isolates), *Candida* spp. (33 isolates), *Rhodotorula* spp. (25 isolates) and *Torulopsis* spp. (6 isolates).

The 43 isolates of *Cryptococcus* belonged to four species: *Cr. neoformans* (30), *Cr. albidus* (7), *Cr. kuetzingii* (4) and *Cr. gastricus* (2). The highest prevalence of *Cr. neoformans* was in Cairo (22.4%), mostly from private houses having a limited number of pigeons.

*C. albicans* was isolated from 19 samples, and other *Candida* spp., *C. guilliermondii*, *C. magi*, *C. reukaufii*, *C. robusta*, *C. robagii*, *C. parapsilosis*, and

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unidentified *C.* species from 14 samples. *Aspergillus fumigatus* was isolated from 13 samples.

In the last 2 years, the problem of bronchopulmonary mycosis in Egypt has been intensively studied. More than 4000 sputum samples have been examined [10], and it is noteworthy that yeasts, especially *C. albicans*, were predominantly isolated and that for the first time *Cr. neoformans* was reported in 4 cases. This finding prompted us to study the ecology of this yeast in Egypt.

In the present work it is of interest that more than 50% of pigeon droppings examined contained yeasts, and that *Cr. neoformans* constituted 28.1% of all yeasts isolated. Although this frequency is low compared with reports from the U.S.A. [3-5], and Japan [9], it is higher than in those from England [6], India [7] and Sweden [2].

*Cr. neoformans* isolates in the U.S.A. were obtained mainly from droppings collected from outdoor sites such as roofs of private dwellings, food markets and city parks. In the present survey *Cr. neoformans* was isolated mainly from samples collected from farmers' houses and a shooting club, where the potential health hazard may be greater. However the significance of *Cr. neoformans* as a cause of disease in man is not yet elucidated in Egypt. In animals it has been sporadically isolated from cases of mastitis [1].

#### RÉSUMÉ

200 fientes de pigeons fraîches, non souillées de terre, ont été récoltées dans plusieurs provinces de basse Egypte (Delta) et mises en culture pour recherche de levures. On a isolé des levures dans 53,5% des échantillons; *Cryptococcus neoformans* à partir de 30 échantillons et *Candida albicans* à partir de 19. D'autres espèces de *Cryptococcus* et de *candida* ainsi que des *Torulopsis* et des *Rhodotorula* ont été rencontrées. *Aspergillus fumigatus* a été isolé 13 fois.

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