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Cryptococcus terreus n.sp., from Soil in New Zealand

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SUMMARY: A new species of *Cryptococcus* has been isolated from six of eight soil samples taken in the province of Otago, New Zealand. It is distinguished from other species of the genus by its ability to utilize glucose, maltose, lactose, galactose and potassium nitrate, but not sucrose.

In the course of a search for pathogenic yeasts in New Zealand soils, eight soils from the province of Otago were sampled for their normal yeast flora. They were cultured on Sabouraud agar of pH 4 and incubated at room temperature. Twenty-four strains of yeasts from each soil sample were subcultured and identified. Six of the soils yielded a hitherto undescribed species of *Cryptococcus*, which comprised thirty-eight of the total 192 isolates. It is proposed to name this yeast *Cryptococcus terreus*.

Cryptococcus terreus sp. nov.

Cellulae in culturis novae rotundae aut subovoidae $(7.5-5.0) \times (7.0-3.0) \mu$. Cellulae circumdatae capsula mucosa. Cultura nova in agar Sabouraudi albida, mucosa. Cultura (post unum mensem) flavifusca, tenax. Sedimentum et anulus formantur. Pseudomycelium nullum.

Fermentatio nulla. Glucosum, maltosum, galactosum, lactosum assimilantur. Sucrosus non assimilatur. Nitratus kalicius assimilatur.

Cell from young cultures globose to slightly oval with mucous capsules. Cell size (disregarding capsules) $(7.5-5.0) \times (7.0-3.0) \mu$. Growth on solid media at first cream and mucoid, later tan with a tough surface skin. A ring and sediment but no pellicle in broth. No mycelium observed.

Fermentation:* absent.

Sugar assimilation:*

Glucose +	Lactose +
Sucrose -	Galactose +
Maltose +	

Assimilation of potassium nitrate:* positive.

A starch-like substance is elaborated on the defined medium of Mager & Aschner (1947).

I am indebted to Miss A. v. d. Hoven v. Genderen of the Yeast Division of the Centraalbureau voor Schimmelcultures, Delft, for the following additional information: splitting of arbutin, strongly positive; ethanol as sole source of carbon, no growth; splitting of fat, negative.

* For details see Lodder & Kreger-Van Rij, 1952.

COMMENTS

No ascospores were seen when this yeast was subcultured upon carrot plugs, Gorodkova agar or Starkey's medium (1946). In the absence of a perfect stage, ballistospores, or mycelium, the species was placed without hesitation

Fig. 1. Cells of *Cryptococcus terreus*. $\times 1000$.

in the genus *Cryptococcus*. The mucous capsules about the cells were well marked (see Fig. 1), and production of starch-like substance was rapid and pronounced.

Cryptococcus terreus closely resembles *C. albidus* on all points but the ability to utilize sucrose. It appears that its distribution may be similar also, for *C. albidus* was found in large numbers in the soils sampled, making up sixty-four of the 192 isolates of the survey mentioned above. *C. terreus* has not yet been found in any site but soil. A survey of aerial yeasts has been made in this laboratory during the past year, and *C. terreus* has not been encountered amongst the several hundred isolates so far made.

Cultures of the type strain of *Cryptococcus terreus* (isolated from soil from a garden in the suburb of Roslyn, Dunedin, in July 1953) have been deposited with the Yeast Division, Centraalbureau voor Schimmelcultures, Delft; The

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Brewing Industry Research Foundation, Nutfield, Surrey, England; and the American Type Culture Collection, 2029, M. Street, N.W., Washington 6, D.C.

I am indebted to Miss A. v. d. Hoven v. Genderen of the Centraalbureau voor Schimmelcultures for confirmation of the validity of this species.

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