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Two New Species of Yeasts from New Zealand

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SUMMARY: A new species of *Candida* was isolated from sphagnum litter overlying a peat bog. It was non-fermenting and assimilated glucose, sucrose, maltose, lactose, galactose and potassium nitrate. The proposed name is *Candida muscorum*. A new *Rhodotorula* species, which it is proposed to name *R. graminis*, was isolated from the leaves of pasture grasses. Cultures on solid media were reddish pink and fluid in consistency. Glucose, sucrose, galactose and potassium nitrate were assimilated.

In studying the characters of the two yeasts to be described the physiological properties were determined by the methods of Lodder & Kreger-van Rij (1952). Assimilation in their terminology, which is used, means utilization as sole carbon and energy source (for sugars) or as sole nitrogen source (for potassium nitrate).

A new yeast from moss overlying a peat bog

A large proportion of the yeasts isolated from the rotting layer of sphagnum overlying a peat bog at Paraparaumu in the Wellington district was found to be of a cream coloured, non fermenting species which produced pseudomycelium, but not ascospores, ballistospores or arthrospores. The isolates assimilated glucose, sucrose, maltose, lactose, galactose and potassium nitrate, and so did not correspond with any of the described species of *Candida* Berkhout. It is proposed to name this species *C. muscorum*.

***Candida muscorum* sp.nov. (Fig. 1)**

Cellulae in culturis novis ovoidae (2·5–4) × (7–19) μ. Cultura nova in agar Sabouraudi albida, valde fluida. Pseudomycelium interdum abundat. Fermentatio nulla. In medio minerali cum glucoso, saccharo, maltoso, lactoso (exiguo), galactoso (exiguo) crescit. Nitras kalicus assimilatur.

Cells from young cultures oval to long oval (2·5–4) × (7–19) μ. Growth on Sabouraud (glucose peptone) agar cream, fluid; mycelial tufts develop in the depths of aging cultures. Pseudomycelium may be weakly or strongly developed and is not characteristic in appearance. A capsule could not be demonstrated.

Fermentation: absent.

Sugar assimilation: Glucose + Lactose + (weak)

Sucrose + Galactose + (weak)

Maltose +

Assimilation of potassium nitrate: strongly positive.

A starch-like compound was not formed on the medium of Mager & Aschner (1947).

Further isolations of this species have been made from two forest soils from Chatham Island, 700 miles east of the South Island of New Zealand. The species dominated the yeast flora of both soils.

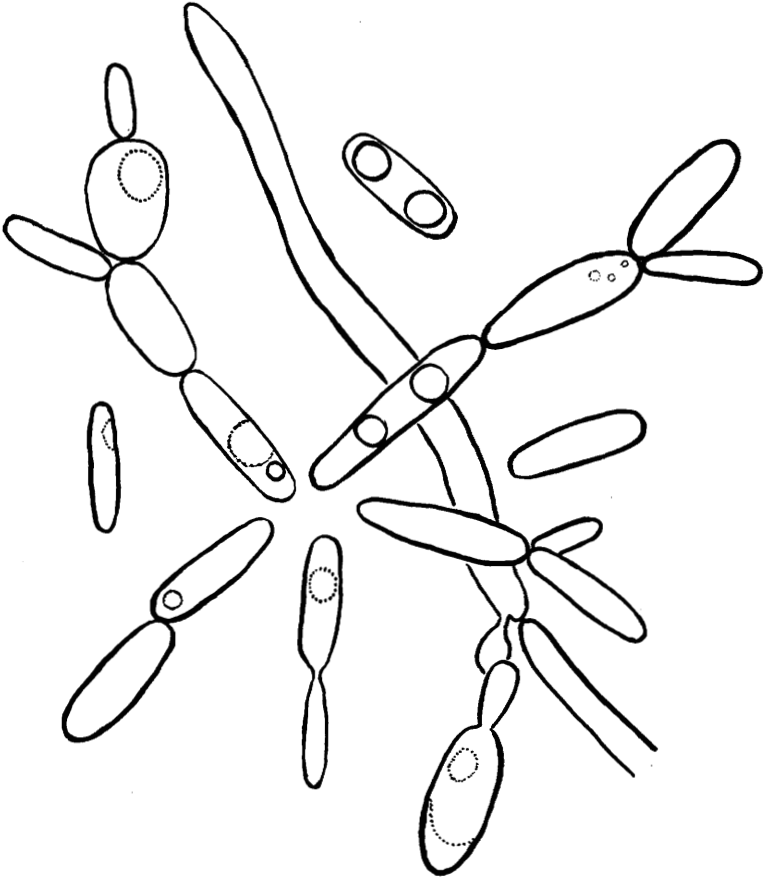


Fig. 1. Cells of *Candida muscorum* nov.sp. $\times 2,500$.

A new yeast from pasture grasses

Isolations of yeasts from the leaf surfaces of pasture grasses (*Lolium perenne*, *Anthoxanthum odoratum* and *Agrostis tenuis*) collected in the North Island of New Zealand in summer were dominated by a new species of *Rhodotorula* Harrison which it is proposed to name *R. graminis*.

***Rhodotorula graminis* sp.nov. (Fig. 2)**

Cellulae in culturis novis $(4-5.5) \times (4.5-7) \mu$. Cultura nova in agaro Sabouraudi subrubra, fluida. Pseudomycelium nullum. Fermentatio nulla. In medio minerali cum glucoso, saccharo, galactoso crescit. Nitras kalicus assimilatur.

Cells from young cultures oval to plump oval $(4\text{--}5.5) \times (4.5\text{--}7)\mu$. Intra- and extracellular fat drops are present, particularly in cultures on potato glucose agar. Growth on solid media pinkish red and fluid, running down the slope. There is little or no variation in the appearance of freshly isolated strains, although some, after long cultivation, may become mucoid rather than fluid.

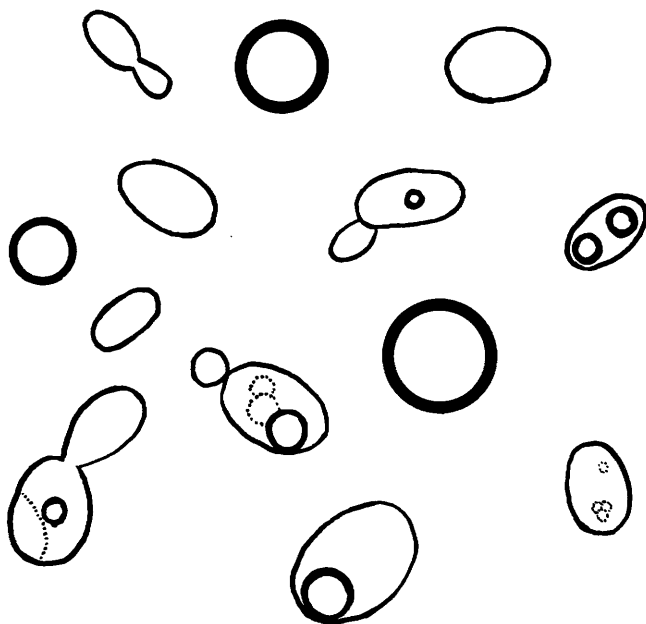


Fig. 2. *Rhodotorula graminis* nov. sp. Cells and extracellular fat drops; fat drops are heavily outlined circles. $\times 2,500$

No pseudomycelium is formed.

Fermentation: absent.

Sugar assimilation: Glucose + Lactose –
 Sucrose + Galactose +
 Maltose –

Assimilation of potassium nitrate: strongly positive.

A starch-like compound was not formed on the medium of Mager & Aschner (1947).

Although the assimilation pattern of *Rhodotorula graminis* resembles that of *Sporobolomyces odorus* Derx there is no further resemblance between the species. Some strains of *S. odorus* were isolated from the grass samples upon which *Rhodotorula graminis* occurred in great numbers and these corresponded with the description given by Lodder & Kreger-van Rij (1952, p. 353). Cultures of *Sporobolomyces odorus* on solid media were cream to fawn and soft, not fluid, and at times powdery with ballistospores. No ballistospores or sterigmata could be demonstrated in any of the cultures of *Rhodotorula graminis*.

Cultures of the type strain of *Candida muscorum*, PS2 from Paraparaumu, and of the type strain of *Rhodotorula graminis*, 2K53, have been deposited with the Yeast Division, Centraalbureau voor Schimmelcultures, Delft, Netherlands, and with the Brewing Industry Research Foundation, Nutfield, Surrey, England.

I am indebted to Dr N. J. W. Kreger-van Rij of the Yeast Division, Centraalbureau voor Schimmelcultures for confirmation of the validity of these species.

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