

# The genus *Pachytichospora* gen. nov. (Saccharomycetaceae)

J. P. VAN DER WALT\*

## ABSTRACT

On the basis of the ultra-structural features of its ascospores, the species originally described as *Saccharomyces transvaalensis*, is transferred to the new genus *Pachytichospora*. The diagnosis for the new genus is given.

## RÉSUMÉ

### LE GENRE PACHYTICHOSPORA GEN. NOV. (SACCHAROMYCETACEAE)

A cause des traits ultra-structurels de ses ascospores, l'espèce décrite premièrement comme *Saccharomyces transvaalensis*, se transfère au nouveau genre *Pachytichospora*. On donne la diagnose du nouveau genre.

## INTRODUCTION

As the first genus to be introduced for the classification of the yeasts, *Saccharomyces* (Meyen) Rees has been characterized by heterogeneity almost since its inception. It has included and still includes by its present demarcation (Van der Walt, 1970), species which are obviously unrelated to the type species, *Saccharomyces cerevisiae* Hansen.

One such species is *Saccharomyces transvaalensis* Van der Walt (1956), which was first recovered from soil samples deriving from localities in the Transvaal. Van der Walt & Liebenberg (1973) subsequently re-investigated three strains of the species which they found to be heterothallic and characterized by sexually agglutinative mating types. Attention was also drawn to the fact that the walls of the unusually large, refringent ascospores of the species, when observed in ultra-thin section by transmission electron microscopy, appeared to be unusually stout with a characteristic, eccentric, lateral thickening (Figs 1 and 2). This feature clearly distinguishes *S. transvaalensis* from the type species, *S. cerevisiae*.

In view of the reliability of structural features of the ascospore for differentiation among yeasts at generic level, *S. transvaalensis* is transferred to a new genus of the Saccharomycetaceae for which the name *Pachytichospora* is proposed.

## DIAGNOSIS

### *Pachytichospora* Van der Walt, gen. nov.

Genus saccharomycetacearum. Cellulae vegetativae gemmiferae, diploideae. Cellulae haploideae sexi oppositi agglutinant. Asci persistentens, oriuntur per transformationem cellularum diploidearum. Ascospores maturaes magnae, sphaericae vel ellipsoideae, interdum lateraliter indentatae, refringentes, parietibus excentrice incrassatis, 1-2 in quoque asco, non liberantur. Fermentatio. Nitras non utitur.

Typus: *Pachytichospora transvaalensis* (V. d. Walt) V. d. Walt, comb. nov. Basionym: *Saccharomyces transvaalensis* V. d. Walt in Antonie van Leeuwenhoek 22: 192, 1956.

Saccharomycetaceae. Budding vegetative cells diploid. Haploid cells of opposite sex agglutinate. Asci persistent, arising by the transformation of diploid, vegetative cells. Ascospores large, spherical to ellipsoidal, sometimes laterally indented, refringent, with stout, eccentrically thickened walls, 1-2 per ascus, not



FIGS 1 and 2.—*Pachytichospora transvaalensis*. Electron micrographs of ultra-thin sections of ascospores fixed in glutaraldehyde, post-fixed with osmic acid and stained with Reynolds's lead citrate. (Magnification 14000 $\times$ ).

liberated at maturity. Fermentation. Nitrate not utilized. Etymology: *Pachytichospora* thick-walled spore, from the Gr. *pachýs* thick, *teichos* wall and *sporá* spore.

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\* Microbiology Research Group, Council for Scientific and Industrial Research, P.O. Box 395, Pretoria.

## UITTREKSEL

Op grond van ultrastrukturele kenmerke van sy askospore is die soort, wat oorspronklik as *Saccharomyces transvaalensis* beskryf is, na die nuwe geslag ***Pachytichospora*** oorgeplaas. Die diagnose vir die nuwe geslag word gegee.

## REFERENCES

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