

ROLE OF WALL PHOSPHOMANNAN IN FLOCCULATION OF *SACCHAROMYCES CEREVISIAE*

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Although flocculation of strains of *Saccharomyces cerevisiae* at the end of brewery fermentations is believed to involve formation of Ca^{2+} -mediated bridges between anionic groups in adjacent cells, there is a difference of opinion among workers as to the nature of the groups involved. Some believe that they are the phosphodiester linkages in side chains of the wall phosphomannan, while others contend that they are carboxyl groups in acidic wall proteins. This communication reports findings which allow an assessment to be made of the relative contributions of these two types of anionic group in yeast flocculation. A technique was used which specifically excizes from the yeast wall phosphodiester linkages and mannose residues distal to the linkage. It involves treating cells or walls with 60% hydrofluoric acid (HF).

Treatment with HF removed most of the phosphorus and small amounts of mannan, glucan and protein from isolated walls of two non-flocculent (NCYC 366 and 1004) and two flocculent strains (NCYC 1005 and 1063) of *Sacch. cerevisiae*. Cells of all four strains showed increase flocculating ability after HF treatment. Treatment with 1,2-epoxy-propane caused a decrease in the flocculating ability of untreated and HF-treated cells. Excision of phosphodiester linkages from the yeast walls by HF, largely without any effect on protein carboxyl groups, was confirmed by pH-electro-phoretic mobility curves of cells. The results are interpreted as indicating that phosphodiester linkages in the wall phosphomannan are not involved in floc formation, and that this is mainly through carbhxy groups in wall proteins.