

THE STUDY OF *SACCHAROMYCES CEREVISIAE* FLOCCULATION IN INDUSTRIAL ETHANOL PRODUCTION.

Missawa, S.K.¹, Cunha, A.F.¹, Andrietta, M.G.S.², Andrietta, S.R.² & Pereira, G.A.G.¹

¹Laboratório de Genômica e Expressão - Departamento de Genética e Evolução - Instituto de Biologia - UNICAMP – SP; ²Divisão de Biotecnologia e Processos - CPQBA – UNICAMP - SP.

Flocculation is a physical process in which yeast cells adhere to each other developing aggregates that could be quickly separate from the medium by self-sedimentation. This phenomenon, considered a big problem in ethanol plants if constitutive, is genetically controlled by dominant genes: *FLO1*, *FLO5*, *FLO9* and *FLO10* and can be improved to use in the ethanol industries substituting centrifuges. Using genetic engineering, the aim of this study is control the expression of the flocculation genes to express only after sugar exhaustion leading yeast cells to sedimentation in this time. To do this yeast cells was transformed with a *FLO10* gene under the control of glucose-repressive alcohol dehydrogenase 2 (*ADH2*) promoter and the gene expression was evaluated by Northern Blot analysis. First results showed that the flocculation starts only in the end of fermentation, but the gene expression was constitutive. In another experiment, constitutive flocculants isolated from different ethanol plants was characterized by PCR using primers in microsatellite regions. Analysis by Northern Blot showed that *FLO1* gene was the mainly responsible for this flocculation.