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Effect of ethanol on the growth of lactic acid bacteria from wine

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The effect of ethanol on the growth of lactic acid bacteria isolated from wine was studied in different strains classified under the genera *Leuconostoc* (A, B), *Pediococus* (C) and *Lactobacillus* (D). A factorial analysis was used to study eight ethanol concentrations (0, 2, 4, 6, 8, 10, 12 and 14%) under three different pH values (3.5, 4.0, 4.5). According to these results, specific growth rates (Fig. 1) were significantly affected by the presence of ethanol specially on both strains of *Leuconostoc oenos*. On the other hand, the pH effect was higher in *Lactobacillus* and *Pediococus* . These results agree with findings reported previously by other authors who demonstrated that *Leuconostoc oenos* is more tolerant to acidic conditions than other species.The negative effect of ethanol was variable among strains and could only be observed for the initial concentrations of 6 to 8%. In most strains an unexpected significant increase on growth rates (Fig.1) was detected when 2 to 4% of ethanol was added to the culture media. In *Leuconostoc oenos* the lower was the pH the higher was the stimulant effect of ethanol. According to these results we can assume that the addition of ethanol and lowering the pH of culture media might set selective conditions to the isolation of *Leuconostoc oenos*.

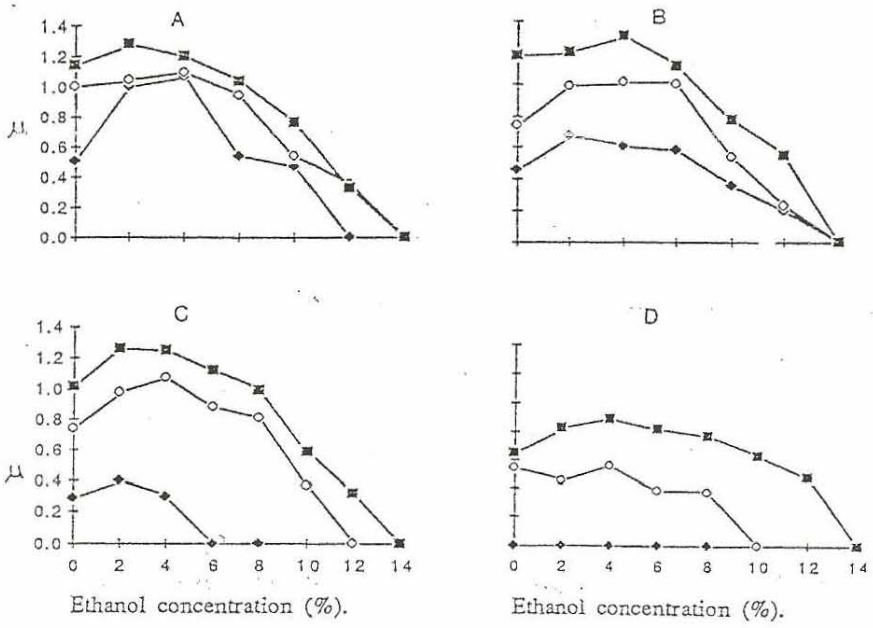

Fig. 1 - Effect of ethanol concentration on specific growth rate of several strains of lactic acid bacteria at different pH (■ - pH 4.5 ◊ - pH 4.0 + - pH 3.5)

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