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ABSTRACT BOOK

EFFECTS OF BENOMYL AND CIMOXAMIL IN GROWTH AND CELL VIABILITY: A COMPARATIVE STUDY IN *ZYGOSACCHAROMYCES BAILII* AND A *SACCHAROMYCES sp*.

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The use of fungicides is a common practice in viticulture. However, the presence of fungicides residues in wine can have negative effects on its quality, specially if the treatment is applied from 8 to 15 days before the harvest. This practice can result in a modification of the native flora of the grapes and in an alteration of the metabolic activity of the fermentative yeast which can lead to the formation of sulphurous odors and inhibition of the alcoholic fermentation.

In the present work the effects of benomyl and cimoxamil in growth and cell viability of *Zygosaccharomyces bailii* ISA 1307 and of a *Saccharomyces sp*, isolated from a grape must at the Adega Cooperativa de Murça, were studied. At pH 4.0 and 26°C, the presence of benomyl and cimoxamil, above a minimum inhibitory concentration (MIC) decreased the specific growth rate of both species, the reduction increasing with the concentration of the fungicide in the extracellular medium. For both species and the two fungicides, when present at concentrations above the MIC value, the inhibition kinetics was expressed by an exponential relation. The dependence of the observed effects in growth of both species although qualitatively identical, was quantitatively different. Actually, the value of the MIC of benomyl in *Z. bailii* ISA 1307 was lower than in *Saccharomyces sp*. In turn, the values of the exponential inhibition constants of growth for benomyl and cimoxamil were higher in *Z. bailii* ISA 1307.

In what concerns the cell viability, the effects of the two fungicides on the specific death rates were studied under isothermic conditions (25°C) and pH 3.0. For both species and both fungicides, cellular death was exponentially stimulated in the presence of increasing extracellular fungicide concentrations. The exponential enhancement constants of cellular death by benomyl and cimoxamil in *Z. bailii* ISA 1307 were lower than in *Saccharomyces sp*. The results suggested that *Z. bailii* ISA 1307, comparatively to *Saccharomyces sp*, is more resistant to benomyl and cimoxamil, at least in what regards cell viability.

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