

# **Interactions between *Saccharomyces cerevisiae* and *Hanseniaspora guilliermondii*: cell-cell contact mechanism**

**Patrícia Branco<sup>1</sup>, Varongsiri Kemsawasd<sup>2</sup>, Nils Arneborg<sup>2</sup>, Helena Albergaria<sup>1</sup>**

<sup>1</sup>Unidade Bioenergia, LNEG, Estrada do Paço do Lumiar, 22, 1649-038 Lisboa, Portugal

<sup>2</sup>Department of Food Science, Faculty of Science, University of Copenhagen, Rolighedsvej 30, 1958 Frederiksberg C, Denmark

Several studies have shown that the early death of non-*Saccharomyces* during wine fermentations are due to yeast-yeast interactions induced by *Saccharomyces cerevisiae* (Sc) through different mechanisms such as growth arrest mediated by a cell-cell contact mechanism (Nissen et al. 2003) and death mediated by killer-like toxins (Pérez-Nevado et al 2006; Albergaria et al. 2010). Besides, previous work also showed that death of non-*Saccharomyces* in co-cultivation with Sc is always triggered at the end of exponential growth phase (Pérez-Nevado et al 2006). In order to investigate the role of cell-cell contact in the early death of non-*Saccharomyces*, we performed assays in which Sc cells pre-grown at enological growth conditions for 12 and 48 h, respectively, were in direct contact with *Hanseniaspora guilliermondii* (Hg) cells at high cellular density ( $10^7$ - $10^8$  cells/ml) in a carbon-free medium. As a negative control we performed similar assays in which Sc and Hg cells were separated by a dialysis tube (pore cut-off of 1000 kDa) and as a positive control a single Hg culture. Results showed that Hg cell density decreased by 2 orders of magnitude (i.e. from  $10^8$ - $10^6$  cells/ml) in contact with 48 h-grown Sc cells, while its viability remained unchanged ( $10^8$ cfu/ml) in the presence of 12 h-grown Sc cells. Moreover, Hg viability was not affected both in the dialysis tube experiments and single culture, which confirmed the death-induced cell-cell contact phenomenon.

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