

IN VIVO EVALUATION OF PROBIOTIC POTENTIAL OF YEASTS ISOLATED FROM ANTARCTICA

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The Antarctic environment is one of the most primitive ecosystems in the world, being characterized by a diversity of little-known microorganisms able to survive in extreme environmental conditions. Therefore, they can possess unusual biochemical pathways allowing them to generate new bioactive molecules, representing a great source for the development of medicines and the demand for probiotics. Probiotics are defined as living microorganisms which when administered in adequate amounts confer benefits to the host health. Many species of bacteria are used and marketed for this purpose, and the only yeast applied as a probiotic in humans is *Saccharomyces boulardii*. Since 2004, our group has been searching new sources for probiotic yeasts, and previous results have shown that *Saccharomyces cerevisiae* UFMG A-905, isolated from production of an alcoholic beverage (*cachaça*), was able to protect against pathological consequences due to enteric infection, intestinal obstruction, inflammatory bowel disease, chemotherapy-induced mucositis and asthma. Thus, this work aims to evaluate two yeasts previously selected in in vitro tests, *Rhodotorula mucilaginosa* UFMG 11 and *Saccharomyces cerevisiae* UFMG 120, in mice. Female 3-week Balb/c mice challenged with *Salmonella enterica* sorovar Typhimurium (ST) were used. In the mortality test, UFMG 120 presented a survival of 20% (the same of the group only challenged with the pathogen), while UFMG 11 presented 60% survival. Animals treated with UFMG 11 and challenged with ST showed a lower weight loss. The yeast was also able to significantly reduce bacterial translocation to the liver, decrease the level of IgA, as well as reduce the levels of MPO and EPO in the ileum and liver when compared to the ST group. In view of these results we conclude that the yeast UFMG11 has probiotic potential. Additional in vivo tests will be performed to verify the mechanism of protection conferred by UFMG 11.

Keywords: probiotic, yeasts, Antarctica, salmonellosis, gastrointestinal tract.

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