

Inactivation of *Rhodotorula* spp. 74 with Cold Atmospheric Plasma

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Abstract : High voltage electrical discharge is a new technology used for inactivation of pathogen microorganisms. Pathogen yeasts can cause diseases in humans if they are ingested. Nowadays new technologies have become the focus of researching all over the world. *Rhodotorula* is known as yeast that can cause diseases in humans. The aim of this study was to examine whether the high voltage electrical discharge treatment generated in gas phase has an influence on yeast reduction and recovery of *Rhodotorula* spp 74 in pure culture. *Rhodotorula* spp. 74 was treated in 200 mL of model solution. Treatment time (5 and 10 min), frequency (60 and 90 Hz) and injected gas (air or argon 99,99%) were changed. Titanium high voltage needle was used as high voltage electrode (positive polarity) through which air or argon was injected at the gas flow of 0.6 L/min. Experimental design and statistical analyses were obtained by Statgraphics Centurion software (StatPoint Technologies, Inc., VA, USA). The best inactivation rate 1.7 log₁₀ reduction was observed after the 10 min of treatment, frequency of 90 Hz and injected air. Also with a longer treatment time inactivation rate was higher. After the 24 h recovery of treated samples was observed. Therefore the further optimization of method is needed to understand the mechanism of yeasts inactivation and cells recovery after the treatment. Acknowledgements: The authors would like to acknowledge the support by Croatian Science Foundation and research project 'Application of electrical discharge plasma for preservation of liquid foods'.

Keywords : *rhodotorula* spp. 74, electrical discharge plasma, inactivation, stress response

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