

ASSESSING ANTIOXIDANT AND PROOXIDANT PROPERTIES OF LACTOBACILLI AND ENTEROCOCCI STRAINS BY USING ORAC AND LUX-BIOSENSOR METHODS

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Lactobacilli are widely used in medicine and veterinary as probiotic bacteria. The World Health Organization defines probiotics as “live microorganisms which when administered in adequate amounts confer a health benefit on the host”^[1]. Lactobacilli are considered one of the most important types of intestinal microbes. Previous studies have proven that these bacteria have an antioxidant, genoprotective effect on the immune and nervous system of the host^[2]. Currently, researchers are also interested in studying enterococci, which are also main types of the intestinal microbiome^[3].

The antioxidant and prooxidant properties of 11 *Enterococcus* strains and 7 *Lactobacillus* strains metabolites were analyzed by the ORAC assay and lux-biosensor test. Bacteria were incubated in cow milk. The metabolites of *Lactobacillus* strains demonstrated strong antioxidant properties even at low concentrations. Metabolites of *Enterococcus* strains had prooxidant properties. They enhanced the action of other prooxidants, such as paraquat, hydrogen peroxide, dioxidine, and showed a synergistic effect. Lux-biosensor test was more informative than ORAC assay. It evaluates the effects of substances on living cells with a complex metabolism. Therefore, the study can reveal not only the effects of the direct action of test substance on the target molecule, but also the effects of the indirect action through intervention in other biochemical processes of the living cell. Therefore, it's recommended to use the lux-biosensor test while selecting probiotic bacteria strains for further work.

References

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