INTRODUCTION

Probiotic (PRO-FOR AND BIO-LIFE) are living organisms with beneficial effects on human health. Some of them find application in treatment of diseases, including radiotherapy of cancer. Ground-based research has shown that probiotics have the potential to prevent adverse changes in the microbiome of people with prolonged exposure to ionizing radiation. The irradiation leads microbial inactivation through different direct or indirect effects. The susceptibility of microbes to irradiation, however, differs greatly.

AIM

In present work we assessed the radiosensitivity of scientifically proven candidate probiotic lactic acid bacteria (LAB) and commercial yeast. We joint efforts to analyze genetic, biochemical, metabolic, radiobiological and radioprotective characteristics of different probiotic cultures. With this aim two Saccharomyces yeast, and original dairy lactobacilli (combined as probiotic multibacterial formula®) were pre-selected.

Materials and Methods

Evaluation viability before and after X-ray irradiation

RESULTS and DISCUSSION

RADIOSENSITIVITY AND MUTABILITY

LAB Strains S.c. – Ls2, LS4, and probiotic mix L28 (live and lyophilized) Source of irradiation – X-rays

Lactobacillus cells are more resistant than yeast cells.

Co-cultivation of yeast cells with bacterial supernatant not effect sensitivity and mutability of yeast cells.

CONCLUSION:

Functional characteristics of probiotic LAB and yeasts are strain-specific and perspective for further characterization under ionizing radiation. In the light of medical application, as well as in space medicine for solution of health problems of astronauts, a larger screening is planned. In the future, new research for other beneficial effects or radio-protective capacity of different postmetabolites/parabiotics of combined yeast-LAB new formulas have to be completed.

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