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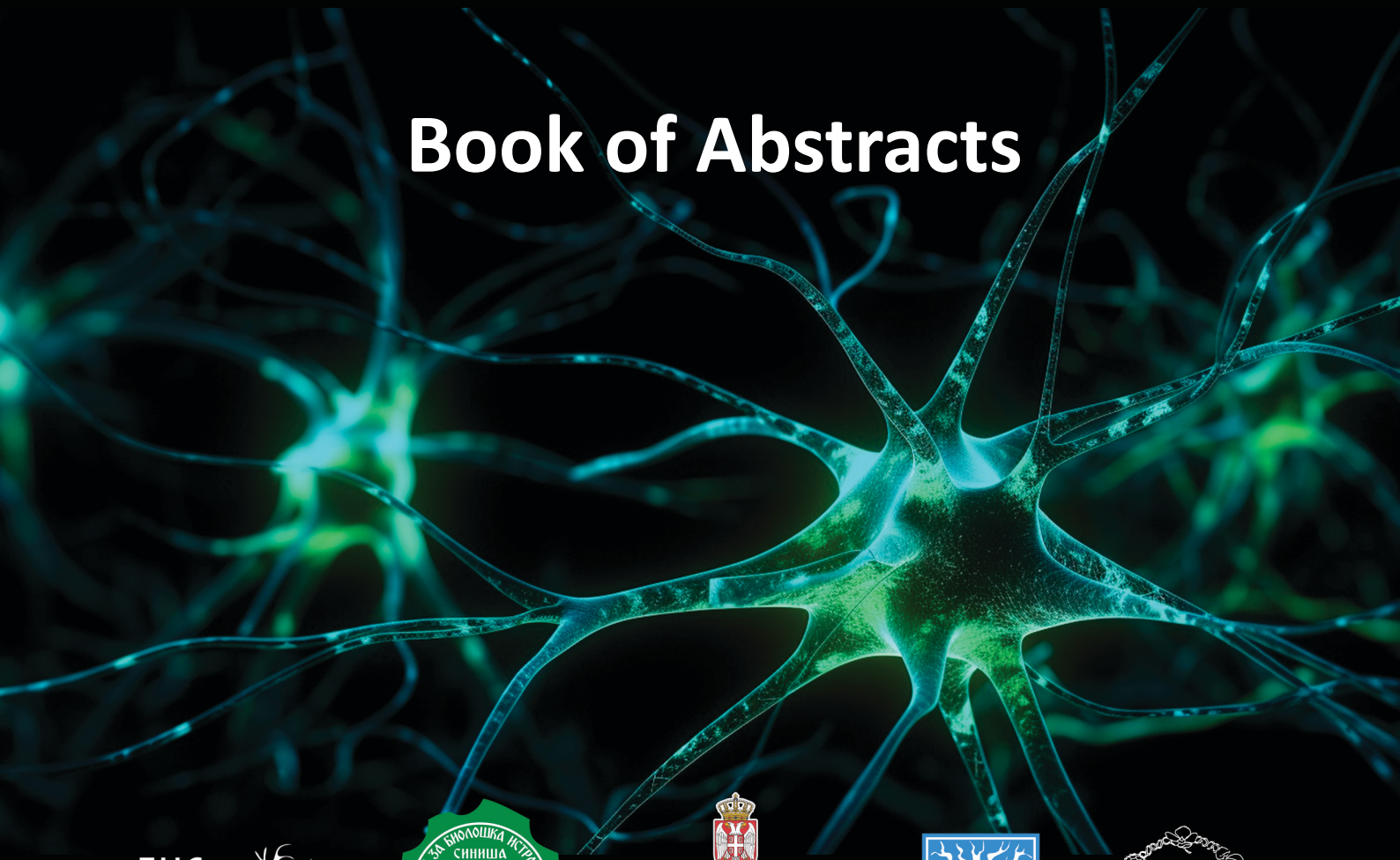

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# Effect of sauerkraut brine in central and peripheral LPS-induced inflammation in C57BL/6 mice

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Systemic inflammation can be triggered by structural components of gut bacteria such as LPS, leading to a cascade of inflammatory pathways involving cytokines and other pro-inflammatory molecules. Dietary interventions have been shown to influence these pathways. Fermented food as a rich source of nutrients, phytochemicals and bioactive compounds, have the significant biological activities, such as anti-inflammatory and immunomodulatory functions. In addition, some of these functions are due to the high content of lactic acid bacteria (LAB) and their products.

The aim of this study was to investigate the effects of sauerkraut brine (SB) on lipopolysaccharides (LPS)-induced central and peripheral inflammation in C57BL/6 mice. Ninety postnatal day-old mice were divided into 3 groups: naive, treated with either 150 µl sauerkraut brine and pasteurized sauerkraut brine (PSB) by oral administration for 5 weeks. Control animals (CON) received an equivalent amount of saline. Both groups received LPS (0.5 mg/kg. i.p.) 3 hours before sacrifice. Brain and liver were isolated for PCR and Western blot analyzes.

The SB and PSB treatments did not affect body weight and behavior of mice compared with CON mice. At the molecular level, the sauerkraut brine affected the TLR4-MyD88 signaling pathway, resulting in a reduction of cytokines and other inflammatory molecules in mice cortex, which was not the case in the liver. Since analysis of sauerkraut revealed a high abundance of lactic acid bacteria (LAB) ($1.8x10^6$/gr), future studies should clarify whether the anti-inflammatory effect of sauerkraut brine is mediated by the mouse microbiota.

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