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THE BOOK OF ABSTRACTS

**XII MEĐUNARODNA KONFERENCIJA O DRUŠTVENOM I
TEHNOLOŠKOM RAZVOJU – STED 2023**

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MICROBIAL SURVIVAL ON DIFFERENT WOODEN SURFACES

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ABSTRACT

Wood has a long tradition as a natural material used by humans in the preparation, packaging and transport of food products. However, microbial adhesion and subsequent biofilm formation on wooden surfaces can be a source of contaminations that may seriously affect the safety and quality of foods. Hence this study aimed to assess the adhesion of bacteria *Escherichia coli* ATCC 35218, *Pseudomonas aeruginosa* ATCC 27853, *Staphylococcus aureus* ATCC 25923 and yeast *Pichia membranifaciens* ZIM 2417 on different types of wooden surfaces such as poplar (*Populus* sp.), Norway spruce (*Picea abies*), European beech (*Fagus sylvatica*), and to evaluate whether Belinka oil food contact and disinfectant P3-oxonia active 150 can interfere with adhesion to beech surfaces. The adhesion was determined by the number of colony-forming units per mm² of sample (CFU/mm²). The results showed that bacteria cells noticeably had a higher ability to adhere to wood in comparison with yeast. Evaluation of adhesion revealed that the gram-negative bacteria *E. coli* ATCC 35218 and *P. aeruginosa* ATCC 27853 exhibited a much better ability for adherence to wooden surfaces than gram-positive bacteria *S. aureus* ATCC 25923. In addition, it should be pointed out that wood species like Norway spruce had antimicrobial effect against *S. aureus* ATCC 25923 and *P. membranifaciens* ZIM 2417 compared to poplar and European beech. Agents used in the food industry to maintain food contact surfaces such as the Belinka oil food

contact and disinfectant P3-oxonia active 150 also showed antimicrobial properties and consequently lower adhesion of microbes to beech surfaces.

Keywords: adhesion, bacteria, yeast, wooden surfaces.

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