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THE BOOK OF ABSTRACTS

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

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CHEMICAL COMPOSITION AND ANTIFUNGAL ACTIVITY OF ROSEMARY ESSENTIAL OIL

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ABSTRACT

Essential oils are one of interesting natural products group that are used in different aspects of life due to their various biological activities. The aim of this study was to determine antifungal activity of *Rosmarinus officinalis* essential oil on selected isolates of mold. Eleven laboratory origin isolates of mold were selected for antifungal researches, such as: *Alternaria alternata*, *Aspegillus flavus*, *A. fumigatus*, *A. niger*, *A. versicolor*, *Cladosporium cladosporioides*, *Fusarium proliferatum*, *F. sporotrichioides*, *Penicillium aurantiogriseum*, *P. expansum* and *P. oxalicum*. Mold species are isolated from wheat, corn and buckwheat and flour of these cereals. The antifungal activity was determined using broth microdilution method.

By the application of GC/MS analysis of essential rosemary oil, 25 components was identified. The major components of the rosemary essential oil were 1,8- cineol (44.73%), camphor (11.90%), α -pinene (10.78%), β -pinene (7.07%), camphene (4.57%), trans-caryophyllene (4.56%), borneol (3.40%), α -terpineol (1.99%), p-cymene (1.89%), bornyl acetate (1.33%) and mircen (1.30%). Essential oil of *Rosmarinus officinalis* showed antifungal activity on all tested isolates in the MIC range of 0.8-14.2 μ l/ml and MFC range of 3.5-454.5 μ l/ml. The lowest MFC value was obtained for *C. cladosporioides* (3.5 μ l/ml). The highest MFC value was obtained for *P. oxalicum* (454.5 μ l/ml). Obtained results of the rosemary essential oil antifungal activities could be of significant value in the improvement of antifungal

protection—the damage reduction caused by molds activities in food and in the replacement of synthetic preservatives and fungicides with products of natural origin.

Keywords: essential oil, rosemary, antifungal activity, molds.

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