

UNIVERSITY OF NIŠ
Faculty of Technology, Leskovac

BOOK OF ABSTRACTS

15th INTERNATIONAL SYMPOSIUM
„NOVEL TECHNOLOGIES AND SUSTAINABLE
DEVELOPMENT“

Leskovac, October, 20-21, 2023.

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ANTIOXIDANT ACTIVITY OF GRAPEFRUIT (*CITRUS PARADISI*) EXTRACT

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Citrus fruits are widely consumed around the world and among them grapefruit (*Citrus paradisi macfad*) stands out with its characteristic appearance and flavor. The fruit is growing on a tree that belongs to Rutaceae family and its positive contribution to health is attributed to phytochemicals found in it.

The phytochemicals have the key role in mediating oxidation process because they act as antioxidants and by that prevention of cell damage, reducing the risks of many diseases, boosting of the immune system, balancing hormone levels, and notable antibacterial and antiviral response of the organism happens. Grapefruits contain several phytochemicals including: carotenoids, flavonoids (naringin), limonoids, organic acids, pectin, and folate. Considering the worldwide consumption and popularity in everyday diet of grapefruit, the antioxidant activity of its extracts is determined in this paper.

Weighed amount 10 g of fresh grapefruits was added to a mixture consisting of organic solvents (hexane, acetone, and ethanol in volumes ratio 2:1:1, respectively) and 0.05% (w/v) butylated hydroxytoluene. The mixture was stoppered and mixed on an orbital shaker at 180 rpm for 15 minutes. The temperature during the mixing was kept at 5 °C in the water bath. Afterward, 7.5 ml of cold deionized water on every 10 grams of starting sample was added to the mixture and agitated for another 5 min. The suspension was transferred to a separation funnel to separate the upper (non-polar) from the lower (polar) phase for 10 minutes at room temperature. The polar phase was subjected for antioxidant capacity determination by ABTS, DPPH, FRAP and CUPRAC methods.

The results for the applied methods expressed per kg of the sample are: 1.8 mmol·kg⁻¹, 0.72 mmol·kg⁻¹, 9.7 μmol·kg⁻¹, 4.66 mmol·kg⁻¹, respectively.

The obtained results are recommending grapefruit as a potent source of phytochemicals with antioxidant properties.