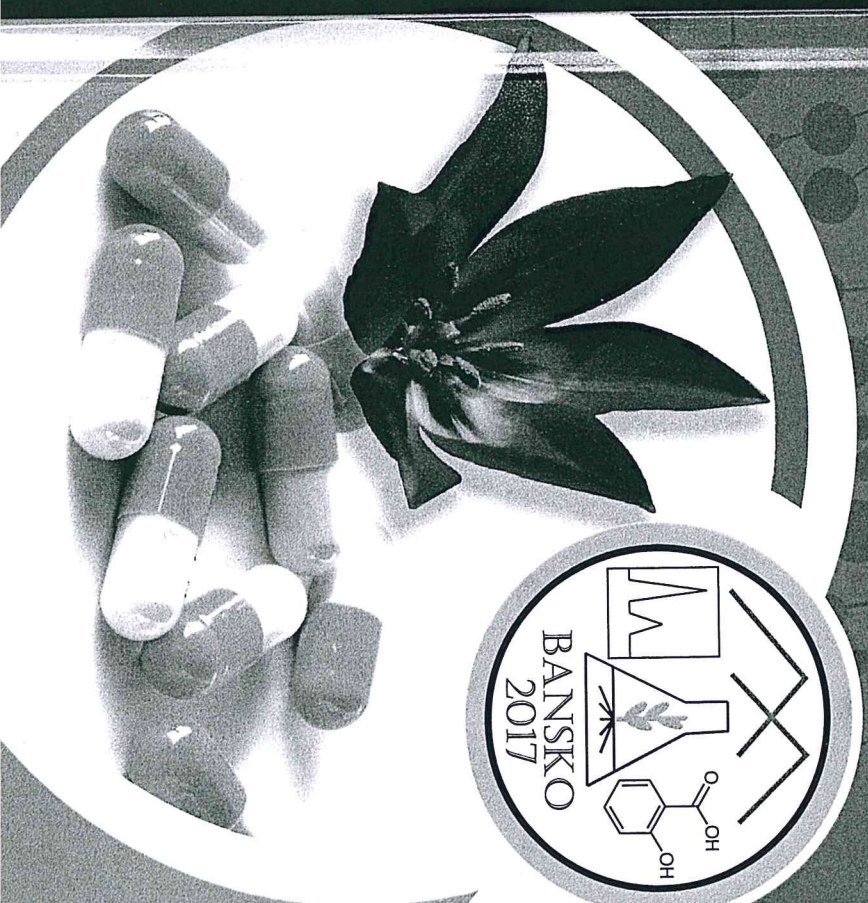
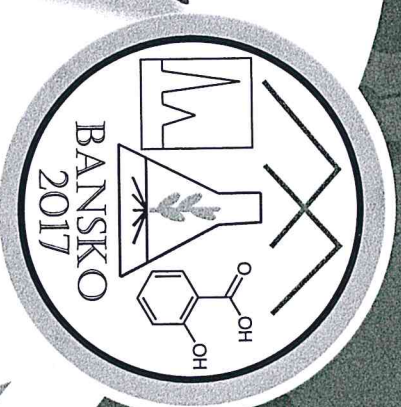


3rd INTERNATIONAL CONFERENCE ON NATURAL PRODUCTS UTILIZATION: FROM PLANTS TO PHARMACY SHELF

18 - 21 October 2017
Bansko • Bulgaria



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THE IMPACT OF ANTIOXIDANTS ON THE CYTOTOXIC PROPERTIES OF CAPSAICIN

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Many studies revealed the cytotoxic properties of capsaicin on different types of cancer cells by discussing the mechanism of its toxicity. This study compares the impact of antioxidants on the cytotoxic properties of capsaicin and therefore confirming or dismissing some of the thesis given previously.

The aim of this review is to examine the influence of a combination of a few common antioxidants, which possess particularly high antioxidative potential, as a reason to inhibit the cytotoxic activity of pure capsaicin. This is due to the synergistic antioxidative effect of capsaicin and other co-extracted bioactive compounds (vitamin C, vitamin E and some flavonoids). In a previous study, we have shown that *Capsicum* extracts did not showed cytotoxic activity on neuroblastoma cells, beside the cytotoxic properties of capsaicin, itself, at concentrations 0.5 mmol/L to 2.1 mmol/L. As shown in the literature, one of the mechanisms of capsaicin cytotoxicity that has been proposed support the production of reactive oxygen species on cellular level. This leads to disruption of mitochondrial membrane potential, activation of caspase-3 activity and successive apoptosis. We assumed that this phenomenon of synergism on the antioxidative effect between capsaicin and other bioactive compounds present in the extracts could be a possible reason for inhibition of the cytotoxic effect of capsaicin.

This data should stress out the importance of a balanced intake of antioxidants while using a cytotoxic agent, which acts as a prooxidant in cancer cells.

References:

- [1] Richeux F, et al. (1999) Archives of Toxicology 73: 403-409.
- [2] Maksimova V, et al. (2016) Revista Brasileira de Farmacognosia 26: 744-750.
- [3] Maksimova V, et al. (2016) International Journal of Electrochemical Sciences 11: 6673-6687.

PHYTOCHEMICAL CHARACTERIZATION AND ANTIMICROBIAL ACTIVITY OF THE SPECIES *LAGOCHILUS* (LAMIACEAE)

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Uzbekistan with unique climatic conditions has a large variety of plants, especially some unique endemic plants. The genus *Lagochilus* (Lamiaceae) consists of 44 species: 33 of them, which grow in Central Asia. About 18 species of *Lagochilus* found in Uzbekistan [1]. Many species of the *Lagochilus* genus have been used in folkloric medicine to treat hemorrhages and inflammation. *L. ilicifolius* and *L. leiocanthus* used for the treatment of hemostatic, inflammation and ulcer in Chinese folk medicine [2]. In Uzbek traditional medicine, people used *Lagochilus* species to make a tea from this herb for its unique sedative and intoxicating properties.

We performed phytochemical investigations on the aerial parts of 7 *Lagochilus* species (*L. acutilobus*, *L. gypsaceus*, *L. inebrians*, *L. olgae*, *L. proskorjakovii*, *L. setulosus* and *L. vvedenski*) distributed in Uzbekistan. The chemical composition of the essential oil isolated from the aerial parts of *L. inebrians* was analyzed by GC-MS and GC-FID. Our investigation reveals that *Lagochilus* genus turned out to be a rich source of terpenes, flavonoids and iridoids. The structures of isolated compounds were elucidated on the basis of 1D and 2D NMR. Further, we performed the qualitative (HPTLC) and quantitative (UV/VIS spectrophotometry and HPTLC densitometry) analysis of the main constituents (lagochilin and 8-acetyl harpagide) of the methanol extracts from *Lagochilus* species. In addition, antimicrobial activity of 7 *Lagochilus* extracts on plant and human pathogens was also carried out.

Acknowledgments: This work was supported by Erasmus Mundus TIMUR.

References:

- [1] Shomurodov HF, Akhmedov A, Saribayeva SU (2014) Ecological Questions 19: 45-49.
- [2] Jing-Shi Q, et al. (2015) Pharmacognosy Magazine 11: 191-195.