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ABSTRACTS BOOK



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19th International Symposium and Summer School on Bioanalysis

Date:
July 8 - 13, 2019

Location:
Șuior, Romania



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**HOLISTIC APPROACH FOR DIAGNOSTICS AND TREATMENT OF
SOCIALY SIGNIFICANT DISEASES**

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Introduction: Fast increasing number of patients with cancer diagnosis and high mortality rate poses scientists and pharmacy pressing need for rapid development of effective approaches and tools for timely diagnosis and adequate treatment of cancer.

There is a growing need for apply of multidisciplinary approach for targeted delivery of therapeutics into their cell targets. In recent years, a new approach is required in a pharmacologically design - combine of two or more pharmacological effects in a single ligand.

Herein is report the design, synthesis and biological effects of novel RGD - analogues and AVPI-RGD hybrid peptide molecules with dual activity - pro-apoptotic and tumor targeting.

Material and Methods: All peptides were synthesized using standard solid-phase protocol with the Fmoc/tBu strategy with the help of Activo-P14 synthesizer. The purity of peptides was analyzed by analytical RP-HPLC and CE. The cytotoxic activity of RGD-analogues and conjugates was evaluated by colorimetric assay based on tetrazolium salt MTT.

Results and Conclusion: AVPI and RGD peptides are subject of intensive research in regard with their pro-apoptotic activity, and potential to be used as agents for targeted anti-cancer therapy. We synthesized a series of short RGD mimetics in which the arginine residue was replaced with Agb and Agp, two of its structural analogues, and their AVPI and SS-conjugates. We examined the cytotoxic and apoptotic potential of newly synthesized analogues and hybrids used as single agents, as well as their sensitizing potential on cancer cells to cytotoxic agents entered into clinical practice (1,2). The RGD-modified peptides by shorter homologues of Arg (having a chain of 5 carbons, α -amino-4-guanidino-butyric acid (Agb), and 4 carbon chain, α -amino-3-guanidino-propionic acid (Agp) show an increase in the cytotoxic effect compared to the parent RGD peptide.

Keywords: RGD peptide mimetics, RGD/AVPI conjugates, MTT assay, solid phase synthesis

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Acknowledgments

The study was supported by National Science Fund, Ministry of Education and Science, Bulgaria; Project, DN19/17, 20.12.2017.

**CHEMICAL CHARACTERIZATION OF RED GOJI BERRY (LYCIUM
BARBARUM L.) CULTIVATED IN REPUBLIC OF NORTH MACEDONIA**

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This study aimed at chemical characterization of nutritional and functional properties of Goji berries (*Lycium barbarum* L.) grown in Macedonia. For that issue, various chemical components were included: mineral nutrients, total proteins, antioxidant activity, total phenolic content, fatty acids and lipid indices. Characteristics were compared to those of *Lycium Chinese* L. capsules. Compared to the RDA values recommended by the European Commission, it has been established that Macedonian Goji berry is a rich source of mineral nutrients (K, Cu, Mn, P, Fe, Mg and Zn) and proteins. Fatty acids profile was dominated by polyunsaturated, mainly n-6 acids. Very low concentrations of toxic elements compared to allowable values in berry fruits set by European Commission and TTHQ index demonstrated no risk for human health. The statistical approach using PCA allowed grouping of nutritional components and those with bioactive properties in 4 groups: (1) minerals and proteins; (2) fatty nutrients; (3) w-fatty acids and (4) components with antioxidant activity. Overall, Goji (*Lycium barbarum* L.) has proved to be an effective natural dietary supplement.

Keywords: *Lycium Barbarum* L., Goji berry, Functional food, Mineral nutrient, Fatty acid, Protein, Antioxidant activity.

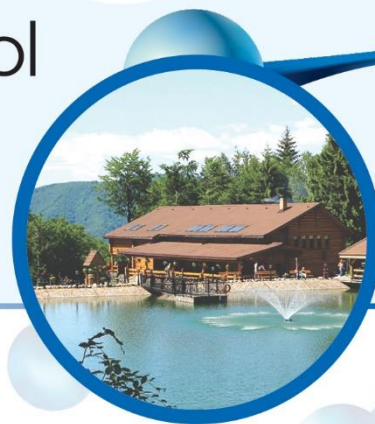
Acknowledgements. This work was supported by a grant from the CEEPUS (CIII-RO-0010) which is gratefully acknowledged.



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