2nd INTERNATIONAL CONFERENCE ON NATURAL PRODUCTS UTILIZATION:

FROM PLANTS TO PHARMACY SHELF

Plovdiv 2015



14–17 October 2015

Plovdiv, BULGARIA



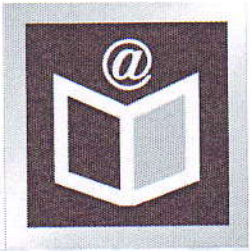
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BOOK OF ABSTRACTS

Plovdiv • Bulgaria

The 2nd International Conference on Natural Products Utilization: from Plants to Pharmacy Shelf (14–17 October, 2015), Plovdiv (Bulgaria) is organized with the financial support of the Ministry of Science and Education, Republic of Bulgaria



МИНИСТЕРСТВО НА ОБРАЗОВАНИЕТО, МЛАДЕЖТА И НАУКАТА

Joint meeting with the Phytochemical Society of Europe and Bulgarian Phytochemical Society





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14–17 October 2015, Plovdiv, Bulgaria

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IMMUNOLOGICALLY ACTIVE POLYSACCHARIDE-CONTAINING COMPLEXES FROM TRADITIONAL AND PERSPECTIVE EUROPEAN MEDICINAL PLANTS

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In the present study we investigated the chemical composition and immunomodulating activity of crude water-soluble polysaccharide mixtures extracted with boiling water from linden (flower), thyme (aerial part), nettle (leaf and root), lavender (aerial part), mountain tea (aerial part), common purslane (aerial part) and soapwort (aerial part). Water-soluble polysaccharides presented in relatively low amounts (2.3-8.6 %) in the studied herbs. All herbs contained mixtures of acidic and neutral (hetero)polysaccharides with the following monosaccharides: Ara, Gal, Rha, Xyl, Man, Glc, Fuc, GalA and GlcA. The total sugars varied between 46.1-77.6 %, as anhydrouronic acid content was the predominant part for most polysaccharide mixtures, except for these from nettle (root) and soapwort. The molecular weight of polysaccharides was between 7.6 - 1950 kDa. The presence of proteins, polyphenols and saponins was also estimated. All polysaccharide mixtures, except that from mountain tea showed high *in vitro* anti-complementary activity (82.6-49.8 %) at 78 μg/mL expressed as total complement hemolysis of target rabbit erythrocytes. Some samples exhibited *in vitro* moderate to high activity against murine intestinal Peyer's patch immunocompetent cells. Activation of *in vitro* ROS production from human whole blood neutrophils was observed for samples with reduced content of lower molecular weight constituents. Additionally, higher polyphenol content in some crude polysaccharides was related to moderate *in vitro* antioxidant activity. The most potent immunomodulating polysaccharide mixtures were isolated from nettle (root) and common purslane.

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VASOPROTECTIVE PROPERTIES OF ARONIA MELANOCARPA – A HISTOLOGICAL AND MORPHOMETRIC STUDY

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The social significance of age-related diseases is determined by their global role in mortality and morbidity, particularly in economically developed countries. The most severe forms of coronary heart disease and cerebrovascular disease are the main reasons for lethality, whereas the "milder" forms often lead to disability of patients in working age. Changes in elastic and muscular arteries walls, resulting from age-related restructuring and progression of atherosclerotic lesions, underlie these diseases. Their prevention through administration of natural products is a research area with huge potential, and application of natural antioxidants is one of the leading strategies to retard vascular aging. *Aronia melanocarpa* juice is a rich source of polyphenols and is characterized by very high antioxidant activity *in vitro*. The aim of the current study was to investigate the effect of aronia juice intake on age-related vascular changes of rat aortic walls. We used a model of aging male rats, whose thoracic aorta walls were subjected to macroscopic, histopathological (hematoxilyn-eosin), histochemical (azan and orcein) and morphometric studies. The comparative analysis between the target group of old animals supplemented with aronia juice; young untreated rats and old controls (not supplemented), revealed that aronia-supplemented animals were characterized with reduced atherosclerotic lesions and a lower level of restructuring of aortic walls. These data confirm that *Aronia melanocarpa* juice successfully retards age-related vascular aging, and can be recommended as a prophylactic tool for healthy aging.

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