

Exploring Polyphenolics Content and Antioxidant Activity of *R. damascena* Dry Extract by Spectroscopic and Chromatographic Techniques

Authors : Daniela Nedeltcheva-Antonova, Kamelia Getchovska, Vera Deneva, Stanislav Bozhanov, Liudmil Antonov

Abstract : *Rosa damascena* Mill. (Damask rose) is one of the most important plants belonging to the Rosaceae family, with a long historical use in traditional medicine and as a valuable oil-bearing plant. Many pharmacological effects have been reported from this plant, including anti-inflammatory, hypnotic, analgesic, anticonvulsant, anti-depressant, antianxiety, antitussive, antidiabetic, relaxant effects on tracheal chains, laxative, prokinetic and hepatoprotective activities. Pharmacological studies have shown that the various health effects of *R. damascena* flowers can mainly be attributed to its large amount of polyphenolic components. Phenolics possess a wide range of pharmacological activities, such as antioxidants, free-radical scavengers, anticancer, anti-inflammatory, antimutagenic, and antidepressant, with flavonoids being the most numerous group of natural polyphenolic compounds. According to the technological process in the production of rose concrete (solvent extraction with non-polar solvents of fresh rose flowers), it can be assumed that the resulting plant residue would be as rich of polyphenolics, as the plant itself, and could be used for the development of novel products with promising health-promoting effect. Therefore, an optimisation of the extraction procedure of the by-product from the rose concrete production was carried out. An assay of the extracts in respect of their total polyphenols and total flavonoids content was performed. HPLC analysis of quercetin and kaempferol, the two main flavonoids found in *R. damascena*, was also carried out. The preliminary results have shown that the flavonoid content in the rose extracts is comparable to that of the green tea or *Ginkgo biloba*, and they could be used for the development of various products (food supplements, natural cosmetics and phyto-pharmaceutical formulation, etc.). The fact that they are derived from the by-product of industrial plant processing could add the marketing value of the final products in addition to the well-known reputation of the products obtained from Bulgarian roses (*R. damascena* Mill.).

Keywords : gas chromatography-mass-spectrometry, dry extract, flavonoids, *Rosa damascena* Mill

Conference Title : ICPMNP 2020 : International Conference on Phytochemistry and Medicinal Natural Products

Conference Location : Tokyo, Japan

Conference Dates : March 23-24, 2020