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Original Article

Chemical Composition and Antioxidant Activity of the Extract and Essential oil of Rosa damascena from Iran, Population of Guilan

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Abstract:

Background and the purpose of study: *Rosa damascena* Mill. (Rosaceae) has cooling, soothing, astringent, and anti-inflammatory effects, and has been used in the north of Iran as a cardiotonic agent. The aim of this study was to identify components of *R. damascena* (cultivated in Guilan Province) extract and essential oil and to study their biological activities.

Methods: Essential oil of *R. damascena* was prepared by hydrodistillation and analyzed with GC/MS instrument. The antioxidant activity of hydro-alcohlic extract of petals and essential oil was measured using free radical scavenging activity with 2-2-diphenyl, 1-picrylhydrazyl (DPPH) and lipid peroxidation (ferric ammonium thiocyanate) methods.

Results: Hydro-alcoholic extract showed strong free radical scavenging capacity compared to lipid peroxidation inhibitory effects. IC50 values of the extract were 2.24 µg/mL and 520 µg/mL in free radical scavenging and lipid peroxidation assays, respectively. The major components of essential oil were linalool (3.8%), nerol (3.05%), geraniol (15.05%), 1-nonadecene (18.56%), n-tricosane (16.68%), hexatriacontane (24.6%) and n-pentacosane (3.37%). The bioassay-guided fractionation of extract led to the isolation of three flavonol glycosides: quercetin-3-O-glucoside, kaempferol-3-O-rhamnoside and kaempferol-3-O-arabinoside. The IC 50 value of the radical scavenging activity of kaempferol-3-O-rhamnoside which was, 530 µg/mL was weaker than the extract.

Major conclusion: The petal of this cultivated rose has no bitter taste and because of its potential antioxidant activity and good taste, can be used as food flavor and a preventing agent for many diseases.

Keywords:

Rosa damascena ، Flavonoids ، Antioxidant ، Essential oil

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