P1.026

Camellia Petal Extracts and Genotypic Variations in Antioxidant Activity

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Purpose: The current research reports antioxidant and free radical-scavenging activities of petal extracts from differently colored Camellia ecotypes.

Methods: Five Camellia japonica ecotypes were chosen for petal extract. Total phenolic and flavonoid compounds were determined. For radical scavenging activities, DPPH and UWLC analysis were conducted.

Results: For total phenolic compounds, five ecotypes showed the ranges of 4.8 mg of GAE (gallic acid equivalent) perg dry weight (DW) to 19.6 mg of GAE for white and pinkish petals, respectively. The DPPH radical scavenging activity of the petal extracts (represented in IC50) was highest (3.8 μg·mL-1) for the pinkish ecotype and lowest (43.1 μg·mL-1) for the white ecotype when compared to the IC50 value for ascorbic acid (13.6 μg·mL-1) as a positive control. The results demonstrate that the efficient DPPH radical scavenging activity of the pinkish ecotype was partly attributed to higher phenolic compounds. Activities of two antioxidant enzymes, catalase and peroxidase, were different among the ecotypes, indicating the presence of ecotype-specific detoxifying processes.

Conclusion: The study demonstrates the potential use of the Camellia petals as an antioxidant resource, but there was a genotypic difference in total amount and antioxidant activities, indicating that more broad screening of the genotypes is necessary.

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P1.027

Evaluation of effect of acupuncture needle corrosion on body tissue during electrical stimulation

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Purpose: we studied the effects of electric acupuncture on tissue necrosis, and the cytotoxic effect of by-products generated by corrosion

Methods: Pulsed electric stimulation was applied to the body surfaces of an anesthetized mouse, on the spots corresponding to acupoints, at 50 V and 120 Hz for 60 minutes, with the duration of each pulse set at 0.05ms, via a 40mm-long needle with a range of diameters (0.18 mm, 0.20 mm, 0.25 mm, and 0.30 mm), and with or without coating. Cell necrosis was confirmed by TUNEL assay, and the extent of needle corrosion was confirmed by observation under an electron microscope. The MTT assay was used to examine the cytotoxic effect of electric stimulation by a needle with a diameter of 0.25 mm under the same conditions, and the extent of needle corrosion was confirmed by observation under an electron microscope.

Results: Tissue necrosis was observed only in cases where non-coated needles with a diameter of 0.25 mm and 0.30 mm were used, and by-products resulting from corrosion were observed only in tissues into which coated needles were inserted. No association between cytotoxicity and needle corrosion was observed.

Conclusion: Our findings suggest that there is little correlation between the by-products generated by needle corrosion and cytotoxicity or cell necrosis. It is speculated that there may be some other condition, other than needle corrosion, that induces cell necrosis. Additional study is required to determine its cause.

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P1.028

5,3'-Dihydroxy-6,7,4'-Trimethoxyflavanone exerts its Anticancer and Antiangiogenesis effects through regulation of the Akt/mTOR Signaling Pathway

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Purpose: 5,3'-dihydroxy-6,7,4'-trimethoxyflavanone (DHTMF) is one of the constituents of Vitex rotundifolia, a medicinal herb that is used for the treatment of various disorders in China and Korea. In this study we evaluated the antitumor and anti-angiogeneic activities of DHTMF.

Methods: Cell viability was assessed by MTS assay. Apoptotic cell deaths were measured by flow cytometric, and western blot analysis. Including phosphorylation of Akt, mammalian target of rapamycin (mTOR), hypoxia-inducible factor (HIF-1α) and vascular endothelial growth factor (VEGF), which are key angiogenic molecules were determined by western blot analysis. In addition to expression of CD34, tube formation and migration assay performed by human umbilical vein endothelial cells (HUVECs), as well as neovascularization in vivo assay performed by mouse Matrigel plug assay.

Results: DHTMF significantly suppressed growth and induced apoptosis in lung carcinoma cells in a dose-dependent manner, as indicated by a decrease in Bcl-2 levels and increases in Bax and cleaved caspase-3 levels. In addition, DHTMF treatment significantly reduced the phosphorylation of Akt and mammalian target of rapamycin (mTOR), accompanied by reductions in the protein level of hypoxia-inducible factor (HIF-1α) and vascular endothelial growth factor (VEGF), which are key angiogenic molecules in lung cancer cells (H522). Furthermore DHTMF inhibited VEGF-induced angiogenesis, as indicated by reduced expression of CD34, tube formation and migration in human umbilical vein endothelial cells (HUVECs), as well as reduced neovascularization in