

Original Paper

Comparison of hypericin content, antioxidant, antimicrobial and cytotoxic activities of *Hypericum perforatum* L. from three geographic regions of Iran

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Abstract

Background and Objective: Hypericin is found in different species of *Hypericum* genus, as a main compound with antimicrobial, antiviral, nonspecific kinases inhibition and dopamin -hydroxylase inhibiting effects. This study was done to compare the hypericin content, antioxidant, antimicrobial and cytotoxic activities of *Hypericum perforatum* L. from three geographic regions of Iran.

Methods: In this descriptive study, Hypericin content of aerial parts of *H. perforatum* L. was assessed using UV-Vis spectrometric method. Antioxidant activity was measured using DPPH and β -carotene bleaching assay. Cytotoxicity was evaluated via brine shrimp lethality assay. Antimicrobial activity was determined using inhibition zone diameter evaluation via disc diffusion method and measuring minimum inhibitory concentration (MIC) value.

Results: Hypericin content of aerial parts of *H. perforatum* L. from Qom, Golestan and Kurdistan provinces were 673, 1223 and 1568 ppm, respectively. Antioxidant and cytotoxic activities in samples from Kurdistan was more than samples from Qom and Golestan. Antimicrobial activity, as far as the number of sensitive microorganisms was evaluated. In this way the order of Golestan>Kurdistan>Qom was exhibited, however the extract of the plant from Kurdistan had the highest activity for two staphylococcus species with the inhibition zone diameter of 17 and 19 mm for *S. aureus* and *S. epidermidis*, respectively and MIC value of 250 μ g/mL.

Conclusion: Hypericin content was more from samples of Kurdistan province with cold climate. Antimicrobial, antioxidant and cytotoxic activities of aerial parts of all samples were high. There is a relationship between hypericin content of aerial parts of *H. perforatum* L. and biological activities.

Keywords: *Hypericum perforatum* L., Hypericin, Antioxidant activity, Cytotoxic activity, Antimicrobial activity

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