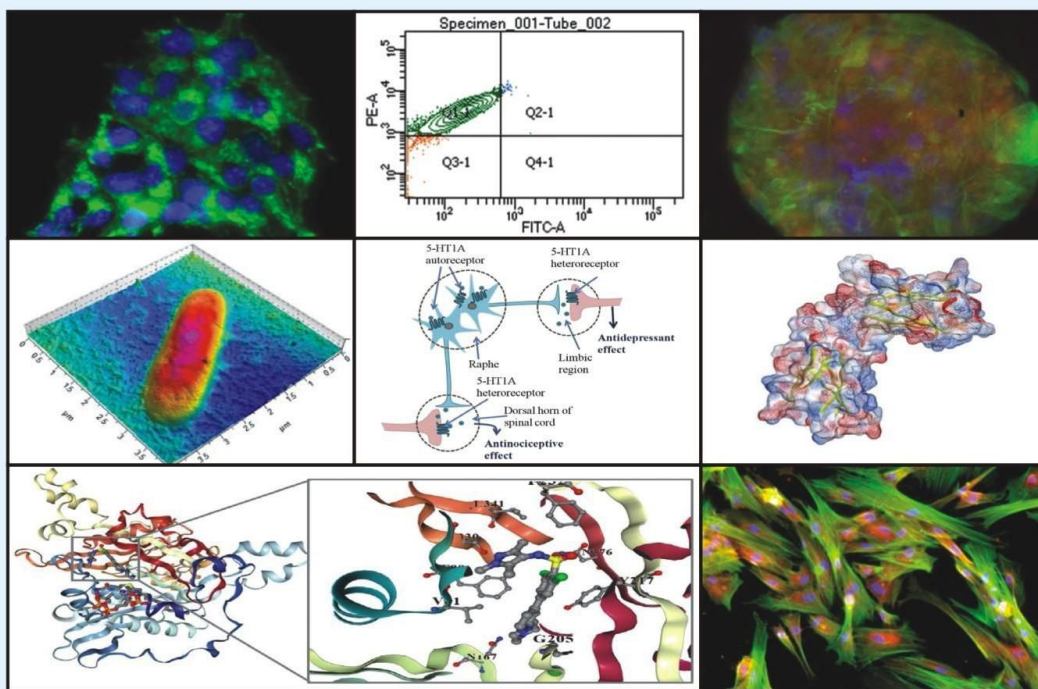


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Abstracts, Program, and List of Delegates



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DR. PANJWANI CENTER FOR MOLECULAR MEDICINE AND DRUG RESEARCH
INTERNATIONAL CENTER FOR CHEMICAL AND BIOLOGICAL SCIENCES
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Phytochemical Analysis and Biological Activity of some Halophytes from Kazakhstan

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Flora of Kazakhstan is widely represented by a variety of wild plants with different spectra of biological activity. It is known that herbal drugs recently occupy an important place in the treatment of several cancer diseases, infectious, gastrointestinal, and other diseases. *Chenopodiaceae* family is extremely versatile; the members of this family play a predominant role in the lowland landscape spaces and deserts, they acquire decisive economic importance as food plants of the desert zone. Chemical analysis of most plants indicates their high nutritional value. *Kochia* is found in arid areas, deserts, and coastal and saline habitats of Central Asia, North and South Africa, Europe, Russia. There are 9 Kazakh species of the plant genus *Kochia*. The genus *Kochia* has been used in traditional Chinese medicine to treat diuresis and skin diseases. Plants of the genus *Petrosimonia* number greater than 11 species, 10 of which are indigenous to Kazakhstan. According to the accepted procedures of the State Pharmacopoeia RK, 1st Ed., specimens of *Kochia prostrata* contained 6.1 % moisture, 19.4 % ash, and 36.7 % extractable substances including polysaccharides (3.2 %), organic acids (2.9 %), flavonoids (2.4 %), saponins (1.0 %), coumarins (0.6 %), tannins (2.4 %), and alkaloids (0.1 %). Phytochemical analysis of the aerial part of *Petrosimonia glaucescens* detected polysaccharides (4.2 %), organic acids (3.6 %), flavonoids (2.0 %), saponins (0.7 %), alkaloids (0.4 %), coumarins (0.3 %), and condensed tannins (0.1 %). The aerial part of *Petrosimonia sibirica* contained organic acids (3.6 %), polysaccharides (4.2 %), flavonoids (3.0 %), saponins (2.6 %), coumarins (0.3 %), alkaloids (0.4 %), and condensed tannins (0.1 %). Air-dried and finely powdered aerial parts of plants genus *Kochia*, which belonging to the halophytes were collected from saline soils at South Kazakhstan region, were exhaustively extracted by maceration for 72 hrs. at room temperature with ethanol (70%) till complete exhaustion. The ethanolic extract was successively portioned using solvents of grade polarities: *n*-hexane, chloroform, ethyl acetate, *n*-butanol. One possible environmentally friendly alternative is supercritical fluid extraction (SFE), in particular using supercritical CO₂ “green technology”. Aerial parts of *Petrosimonia glaucescens* and *Petrosimonia sibirica* were extracted by using a Supercritical Carbon Dioxide Extractor (Thar 1000 F, Thar Technologies, Inc., Pittsburgh, PA, USA). The effects of moisture content, particle size, solvent flow-rate, pressure and temperature on the extraction yield were evaluated. Various temperatures (40, 60, 70 °C) and pressures (150-200 bars), addition of co-solvent (5, 10, and 15 % ethanol), extraction time (40 min), and CO₂ flow rate (10 g/min) for the modified extraction processes were compared. The cytotoxic activity against K562 (chronic myelogenous leukemia) cell line was estimated by the 3-(4,5-dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium bromide (MTT) assay, which is based on the cleavage of the tetrazolium salt by mitochondrial dehydrogenases in viable cells. In K562 cells the results indicated that the ethyl acetate fraction of *Kochia prostrata* was the most potent cytotoxic sample as concluded from the low IC₅₀. Antioxidant activity of the extracts from plants genus *Petrosimonia* were tested by five used methods namely, β-carotene-linoleic acid, DPPH[•], and ABTS^{•+} scavenging, CUPRAC and metal chelating assays.