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Poster – [A-10-379-1]

Effect of barberry fruit (*Berberis vulgaris*) on serum glucose and lipids in streptozotocin-diabetic rats

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Objectives: Barberry (*Berberis vulgaris*) is used in traditional medicine for a number of diseases including diabetes mellitus. The aim of the present study was to evaluate the antidiabetic activity of aqueous extract of Berberis vulgaris fruit in streptozotocin-induced diabetic rats.

Material and Methods: Male Wistar rats were randomly divided into 4 groups, including 1) control, 2) diabetic, 3,4) diabetics treated with aqueous extract of barberry. The treatment groups received the barberry fruit extract daily in drinking water containing 3.5% and 7.5% from a 100mg/ml of the initial extract, since the day after diabetes confirmation for 6 weeks. The blood glucose and lipids were spectrophotometrically measured in all groups at weeks 0 (before diabetes induction), 3 and 6.

Results: Diabetic rats showed an elevated serum glucose level over those of control rats ($p<0.0001$) and treatment of diabetic rats for 6 weeks with the aqueous extract of barberry fruit did not change the serum glucose concentration in comparison to diabetic rats. Regarding serum lipids, diabetes induction caused a significant increase in triglyceride concentration compared to control ($p<0.05$) and treatment with barberry fruit did not change the triglyceride concentration compared to diabetic group. Meanwhile, diabetes induction did not change the total cholesterol and HDL-cholesterol concentrations in diabetic rats compared to controls.

Conclusion: The aqueous extract of *Berberis vulgaris* fruit at amounts of 3.5 and 7.5% of drinking water did not possess the hypoglycemic and hypolipidemic effects in streptozotocin-diabetic rats during 6-week treatment period. Therefore, the usage of barberry fruit in traditional medicine for the lowering of glucose or lipids in diabetic patients may need more investigation.

Keywords: *Berberis vulgaris* fruit, Diabetes mellitus, Hyperglycemia, Hyperlipidemia, Rat

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Poster – [A-10-393-1]

Antibacterial effect of *Salvia leriifolia* Benth essential oil obtained in different phenologic stages against cariogenic bacteria

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Introduction: Until microbial actions essential oils are one of the most extensively studied aspects of botanical medicine, various aromatic plant species are being investigated for their pharmacological properties. *Salvia leriifolia* Benth (Lamiaceae), as a native plant species of South Khorasan province, has significant applications in medicine, pharmacology and food industries. In the current study, *S. leriifolia* essential oil was tested for its antibacterial activity against cariogenic bacteria and then relation between antimicrobial property and plant fenology was investigated.

Method: Essential oil of plant leaves at three different phonologic stages (vegetative, flowering and seed formation) was extracted by steam distillation method and then its antibacterial activity against *Streptococcus mutans* (PTCC:1683), *Streptococcus sangius* (PTCC:1449) and *Actinomyces viscosus* (PTCC:1202) was evaluated by Agar dilution method. The study was conducted based on Completely Randomized Design (CRD) and data were analyzed with JMP and MSTATC softwares.

Result: Minimum inhibitory concentrations (MICs) of essential oil at vegetative stage were 21, 25 and 12.5 mg/mL against *Streptococcus mutans*, *Streptococcus sangius* and *Actinomyces viscosus*, respectively. The evaluated MICs at flowering stages were 21, 21 and 25 mg/mL for the above mentioned bacteria with the same order. At the stage of seed formation, MIC was 25 mg/mL for all bacteria.

Conclusion: Results showed that the essential oil of *S. leriifolia* had significant inhibitory effect on growth of all tested bacteria. In flowering time, the plant showed more antibacterial activity than other phenologic stages and *Actinomyces viscosus* showed to be the most sensitive bacteria.

Keywords: Antibacterial activity, Agar dilution, Essential oil, Phenologic stages, *Salvia leriifolia*, *Streptococcus mutans*, *Streptococcus sangius*, *Actinomyces viscosus*

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Poster – [A-10-403-1]

Protective effects of pulp aqueous and hydro-alcoholic extracts of *Punica granatum*, on serum/glucose deprivation-induced PC12 cells injury

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The serum/glucose deprivation (SGD)-induced cell injury in cultured rat pheochromocytoma (PC12) cell line represents a useful in vitro model for studying the induction of cell injury following brain ischemia and other neurodegenerative disorders. Pomegranate (*Punicagranatum L.*) has been known for its antioxidant constituents. To elucidate the neuroprotective effects of pomegranate, we have evaluated pulp aqueous (PHE) and hydro-alcoholic(PAE) extracts, on viability of cultured PC12 cells under serum/glucose deprivation conditions. PC12 cells were grown in DMEM media, supplemented with 10% FCS, and 1% antibiotic, containing 100 IU/ml penicillin and 100 μg/ml streptomycin. After seeding overnight, cells were deprived from serum/glucose for 6 and 12 hrs. In treatment groups, cells were pre-incubated with PHE and PAE (6.25-800 μg/ml) for 2 h before inducing SGD, in which the same treatments were applied. Cell viability was evaluated by MTT assay. Exposure of PC12 cells to SGD condition for 6 and 12 hrs induced a significant decline in cell viability ($p<0.001$). Treatment of PC12 cells for 6 and 12 h with PHE, PAE (6.25–800 μg/ml) significantly reduced the SGD-induced cytotoxicity in PC12 cells Herein, we have shown that PHE, PAE increased cell viability following serum/glucose deprivation in PC12 cells. It

Certificate of Presentation

This is to certify that: Reyhaneh Hoshyar Sarjami

Title of presentation: Antibacterial effect of Salvia leriifolia Benth essential oil obtained in different phenologic stages against cariogenic bacteria

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