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32nd BALKAN MEDICAL WEEK - Nis, SERBIA
32eme SEMAINE MEDICALE BALKANIQUE - Nis, SERBIA

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Conclusion. The subchronic administration of *C. coggygria* infusion is non-toxic in the applied concentrations and therefore it can be used for further investigation of possible protective effects in animal models of different pathological conditions.

Key words: biochemistry, European smoke tree, pathoanatomy, phytopharmacology

P80 Antigenotoxic and antioxidant properties of the methanol extract obtained from the underground parts of *Gentiana cruciata*

Matić S[1], Stanić S[1], Solujić S[2], Stanković N[2], Mladenović M[2], Katanić J[2], Mihailović V[2]

[1]Department of Biology and Ecology, Faculty of Science, University of Kragujevac, Serbia

[2]Department of Chemistry, Faculty of Science, University of Kragujevac, Serbia

Introduction. *Gentiana cruciata L. (Gentianaceae)*, commonly called ''cross gentian'', is used in the traditional medicine for loss of appetite, as a stomachic, as well as component in preparations showing beneficial effects in gall and liver diseases.

Aim of this study was to evaluate antigenotoxic and antioxidant properties of the methanol extract obtained from the underground parts of *G. cruciata* from Serbia.

Methods. The methanol extract were investigated for antigenotoxic activity against ethyl methanesulfonate (EMS) using the *in vivo* sex-linked recessive lethal test on *Drosophila melanogaster*. Total antioxidant capacity, as well as free radical scavenging potential by applying the 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay, were determined. Quantity of total phenolic compounds were determined as gallic acid equivalent using Folin-Ciocalteu's reagent, while the spectrophotometric method with aluminium chloride was used for the determination of total flavonoids as the rutin equivalent.

Results. Although EMS in concentration of 0.75 ppm (parts per million) increased the mutation frequency in all stages of spermatogenesis, post-treatments with extract in concentration of 5% drastically reduced the frequency of sex-linked recessive lethal mutations induced by EMS. Contents of total phenolics and total flavonoids were found to be 17.72 and 1.20 mg/g dry weight of extract, respectively. Total antioxidant capacity was 194.78 mg ascorbic acid/g dry extract, while antiradical activity of the extract (IC_{50}=2.60 mg/ml) were comparable to the activities of referent antioxidant compounds, such as gallic acid.

Conclusion. Phenolics and flavonoids were reported to have the capacity to scavenge mutagens or free radicals, therefore, they may be responsible for the beneficial effect exhibited by this plant.

Key words: antigenotoxicity; antioxidant; methanol extract, *Gentiana cruciata L*

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P81 Hepatoprotective activity of methanolic extract of root of *Gentiana asclepiadea* L. in carbon tetrachloride induced hepatic damage in rats

Mihailović V[1], Katanić J[1], Mihailović M[2], Šipovac K[1], Stanković V[3], Solujić S[1], Mladenović M[1], Stanković N[1], Matić S[4]

[1]Department of Chemistry, Faculty of Science, University of Kragujevac, Serbia

[2]Institute for Biological Research "Siniša Stanković", University of Belgrade, Serbia

[3]Institute of Pathology, Faculty of Medicine, University of Kragujevac, Serbia

[4]Department of Biology and Ecology, Faculty of Science, University of Kragujevac, Serbia

Introduction. This study using *in vivo* model investigates hepatoprotective activity of the methanol extract of *Gentiana asclepiadea* L. roots (GAR) against carbon tetrachloride-induced liver injury in rats. *G. asclepiadea* (Gentianacea) is traditionally used as a medicine for hepatitis infections and the Serbian local name of this plant is a "grass of jaundice". Herb and roots of this plant are also used in the traditional medicine as a bitter tonic and gastric stimulant.

Aim. The aim was to examine. hepatoprotective activity of methanolic extract of root of *Gentiana asclepiadea* L. in carbon tetrachloride induced hepatic damage in rats.

Methods. Wistar rats were orally pretreated with GAR (100, 200, and 400 mg/kg) and silymarin (10 mg/kg) for seven days before they were treated with CCl_4 (1 ml/kg, 1:1 mixture in olive oil) which caused liver injury.

Results and Conclusion. Pretreatment with GAR dose-dependently and significantly ($p < 0.05$) decreased levels of serum transaminases (AST and ALT), alkaline phosphatase and total bilirubin, whereas an increase was found in the level of total protein compared with CCl_4-treated group. In the liver tissue anti-oxidant studies, we found a significant increase in the levels of catalase, superoxide dismutase and reduced glutathione, whereas there was marked reduction in the levels of malondialdehyde, as compared to CCl_4 treated group. Histological analyses also show that GAR and silymarin reduced the incidence of liver lesions including necrosis and fibrosis of hepatocytes induced by CCl_4 in rats. The maximum protection was observed at the dose of 400 mg/kg and the liver sections of the rats from this group showed minor pathomorfological changes that were more similar to the control and silymarin treated groups.

Key words: *Gentiana asclepiadea L*, hepatoprotective activity, histopathology

Acknowledgment: This research was supported by the Ministry of Education and Science of the Republic of Serbia (project No. III 43004).

P82 A comparison study of the effects of total extract of *Haberlea rhodopensis (Friv.)* with Fucoidan, Propolin and Silicea 5CH on the white blood cells levels in mice

Apostolova E, Peychev L

Department of Pharmacology and Drug Toxicology, Medical University, Plovdiv, Bulgaria

Introduction. In the last few years the interest in the substances, which influence blood cells levels, is increasing. The reason is the most common side effect of the drugs, used for cancer treatment – myelosupression and damage of bone marrow functions. *Haberlea rhodopensis (Friv.)* belongs to a group of plants, known as resurrection plants, which possess the rare ability to withstand severe desiccation and revive from an air-dry state.

Aim. We investigated the influence of total extract of *Haberlea rhodopensis* on the white blood cells levels in mice.

Methods. The mice were divided in 5 groups of 10, which were treated respectively with *Aqua destillata*, Fucoidan, Propolin, total extract of *Haberlea rhodopensis* and Silicea 5CH. Two hours later blood samples of the mice were investigated and the differences in their complete blood count test were studied.

Results. The most significant decrease in the number of the white blood cells showed mice treated with Propolin (8,3±0,6 10^9/L) and Haberlea rhodopensis (9.7±1.1 10^9/L). The number of the white blood cells in mice treated with Fucoidan (15.4±1.1 10^9/L) was similar to that of the control group (15.6±1.7 10^9/L). The mice treated with homeopathic drug Silicea 5CH (12.2±1.4 10^9/L) showed decrease the number of white blood cells compared to the control group.

Conclusion. The experimental data revealed that total extract of *Haberlea rhodopensis* displays the ability of decreasing the number of the white blood cells in peripheral blood.

Key words: Fucoidan, *Haberlea rhodopensis*, Propolin, Silicea 5CH, white blood cells

P83 Comparative assessment of the cytotoxic effects of hyperatomarin, isolated from *Hypericum annulatum* Moris. and daunorubicin against human tumor cell lines

Bilali S, Zhelyazkova A, Momekov G[1], Karaivanova M

[1] Faculty of Pharmacy, Medical University, Plovdiv, Bulgaria

[2] Medical University, Sofia, Bulgaria

Introduction. The Balkan Region represents one of the European major centers of plant diversity, with an substantial number of endemic genera and species. *Hypericum annulatum* Moris subsp. *annulatum*, also known as *H. Degenii* Bornm, is endemic for the Balkan Peninsula and Sardinia. Phytochemical investigations demonstrate the presence of flavonoids, catechins, hypericins, xanthones, benzophenones and prenylated floroglucinols.