

PhP-P15. FOLIA BETULAE EXTRACTS – INFLUENCE OF TECHNOLOGICAL FACTORS ON THE ANTIMICROBIAL AND ANTISPASMODIC EFFECTS

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Birch leaves contain a wide range of biologically active substances – flavonoids, tannins and terpenes. They have diuretic, gall removing, anti-inflammatory, antimicrobial, constipating and urine chasing action. They determine the therapeutic use of the extract. The influence of technological factors on the content of the biologically active substances is examined. *The aim* of this study is to obtain extracts from Folia Betulae, by using different methods and technology. It was made a phytochemical characterization of the extracts and their standardizing according to important groups of biologically active substances – flavonoids (rutin, quercetin) and terpenes (betulin and betulinic acid), by means of HPLC methods for proving and quantitative defining. Antimicrobial activity was studied via in vitro test over bacterial isolates from urinas – *Staphylococcus aureus* and *Escherichia coli*. The dry extract from Folia Betulae has a dose – dependent antibacterial effect. Stronger is the bactericide effect on *Staphylococcus aureus*. The antispasmodic effect was investigated by using in vitro physiological test with smooth muscle strips. Results prove that the extract adding brings to stimulating effects on their contractility.

PhP-P16. TOTAL ANTIOXIDANTS LEVEL IN CAFFEINE-FREE HERBAL INFUSIONS SUITABLE FOR UNRESTRICTED EVERYDAY USE

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Introduction: Coffee and tea (*Camellia sinensis*), are widely used beverages among general population. Their high levels of antioxidants, especially those in green tea, are believed to have beneficial effects on human health. Anyway, because of their high caffeine levels, coffee and tea are unsuitable for children, women during pregnancy and lactation and for caffeine intolerant persons. *Aim of the study:* Although there is no established recommended daily

allowance for total antioxidants in human diet, we investigated alternative sources of antioxidants from caffeine-free and nonalcoholic beverages, free from preservatives, additives and artificial colors. *Material and methods:* Herbal infusions, suitable for unrestricted everyday use, were compared for their total antioxidant levels with coffee and tea. *Menthae piperitae folium*, *Origanum vulgare herba*, *Serpillii herba*, *Hibisci flos* and *Chamomillae flos* from Alkaloid Skopje (Good Nature), *Rosehip* from Koro Skopje, green and black tea (Camellia sinensis) from Alkaloid Skopje (Good Nature), *Nescate Classic instant coffee*, *Jacobs Monarch instant coffee* and *Jacobs Night and Day decaffeinated instant coffee* were analyzed for total antioxidants by FRAP method. 0.5 g dry herbs or 0.5g instant coffee were prepared with 50mL boiled water for 10 minutes. Total antioxidants were expressed as mmol/L FeSO₄. *Results:* Total antioxidants levels were: for *Menthae piperitae folium* 8,6 mmol/L; for *Origanum vulgare herba* 17,7 mmol/L; for *Serpillii herba* 6,9 mmol/L; for *Hibisci flos* 6,2 mmol/L; for *Chamomillae flos* 14,2 mmol/L; for *Rosehip* 8,0 mmol/L; for green tea 25,2 mmol/L; for black tea arch instant coffee 16,0 mmol/L; for *Jacobs Night and Day decaffeinated instant coffee* 15,6 mmol/L. *Conclusion:* In accordance with data from literature, green tea is superior with its antioxidants level. It is important to notice that *Origanum vulgare herba* has very high content of antioxidants, 70,2% from total antioxidants as coffee, regular or decaffeinated and black tea. Other herbal infusions studied, except from *Chamomillae flos*, have also significant levels of total antioxidants. In respect of total antioxidants level, decaffeinated coffee could be considered as a good replacement for regular coffee for mildly caffeine intolerant persons.

PhP-P17. CYTOTOXICITY ASSESSMENT OF FOUR CARYOPHYLLACEOUS SPECIES ON MACROPHAGES

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Saponins from the roots of four Caryophyllaceous species, *Gypsophila paniculata*, *G. trichotoma*, *Saponaria officinalis* and *Dianthus sylvestris* were extracted with 10% methanol by sonification. The obtained extracts were compared with the saponins Gypsoenin 3-O-glucuronide and Quilic acid 3-O-glucuronide. After a mild acid hydrolysis of the root saponins these repre-