University of Plovdiv "Paisii Hilendarski"
Faculty of Chemistry

11-th Chemistry Conference (11CC)
11 – 13 October 2018, Plovdiv

Book of abstracts

Friday 12 October 2018 16:30 – 18:30

POSTER SESSION 1 – *Food chemistry, New methods and materials, Analytical chemistry*

Code	Title	Authors
S1P12	Bioaccumulation factors and chemometric analysis of nine wild edible mushrooms from Batak mountain, Bulgaria	M. Ivanova, L. Dospatliev
S1P13	Evaluation of paralytic shellfish poisoning toxin profile of mussels from Bulgarian north Black Sea coast by HPLC-FI with postcolumn derivatisation	Zl. Peteva, B. Krock, M.Stancheva, St. Georgieva, A. Gerasimova
S1P14	Optical characteristics of French wines	St. Minkova, N. Avakumova, V. Vladev, Kr. Nikolova, V. Hadjimitova, T. Eftimov
S1P15	Physico chemical characteristic of Chia seeds from Peru	G. Uzunova, M. Perifanova-Nemska, J. Petkova, St. Minkova, Kr. Nikolova
S1P16	Correlation between antioxidant properties and optical characteristics of Algal A gueous extracts at different conditions	P. Radusheva, Iv. Minchev, N. Avakumova, Il. Milkova – Tomova, Kr. Nikolova, V. Hadjimitova, I. Bodurov, T. Yovcheva
S1P17	Estimation of THQ and potential health risk for metals by consumption of some Black Sea marine fishes and mussels in Bulgaria	K. Peycheva, V. Panayotova, A. Merdzhanova, M. Stancheva
S1P18	Seasonal variation in fat soluble vitamins, cholesterol and fatty acid profile of lipid classes of Rapana venosa	A. Merdzhanova, D. Dobreva, V. Panayotova, R. Stancheva
S1P19	Effect of thermal stress on the biologically active lipids of Mutilus galloprovincialis	D. Dobreva, A. Merdzhanova, V. Panayotova, R. Stancheva
S1P20	Quality-related changes of biologically active lipids in Bluefish muscle tissue after cooking	D. Dobreva, A. Merdzhanova, V. Panayotova
S1P21	Coefficient of diffusion of tannins in extracts from physalis leaves (*Physalis peruviana* L.)	S. Tasheva, T. Ivanova, V. Popova, I. Iliev, S. Stankov, H. Fidan, N. Mazova, A. Stoyanova
S1P22	Chemical composition of the dill essential oils (*Anethum graveolens* L.) from Bulgaria	M. Dimow, K. Dobreva, A. Stoyanova

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S1P23	Effects of vanillin on behavioral impairments in Parkinson's disease model in rats	A. Popatanasov, T. Pajpanova, M. Lazarova, L. Tancheva
S1P24	Characterization and application of spent brewer's yeast for silver nanoparticles synthesis	N. Yancheva, D. Karashanova, B. Georgieva, I. Vasileva, A. Stoyanova, P. Denev, R. Dinkova, M. Ognyanov, A. Slavov
S1P25	Carbon fiber enzyme electrodes fabricated by invertaz and polyphenol oxidase enzymes	G. Karabacak, A. Boyukbayram
S1P26	Effective activation of PMS by Co, Bi and Mg doped g-C_3N_4 for organic dyes oxidative degradation	V. Ivanova-Kolcheva, M. Stoyanova
S1P27	Biosynthesized silver nanoparticles: electrochemical application	Y. Lazarova, T. Dodevska, A. Slavov, D. Karashanova, B. Georgieva
S1P28	Synthesis and characterization of novel polymeric architectures for biomedical applications	S. Ismail and R. Bryaskova
S1P29	Iridium oxide modified graphite materials as an electrochemical sensing platform	T. Dodevska, I. Shterev, Y. Lazarova
S1P30	Copper supported on nanostructured mesoporous titanium-tin oxide composites as catalysts for sustainable environmental protection: Effect of support composition	G. Issa, T. Tsoncheva, M. Dimitrov
S1P31	Effect of the tautomeric functionality and aromaticity of the stator in rotary switches	S. Hristova, A. Kurutos, F. Kamounah, A. Crochet, P. Hansen, K. Fromm, L. Antonov
S1P32	Isolation and purification of lipase produced from Rhizopus arrhizus in solid state fermentation by fractional precipitation	A. Hambarliiska, V. Dobreva, H. Strinska, B. Zhekova, G. Dobrev
S1P33	Investigation of luminescent properties of thin zinc oxide films doped by cerium	A. Shulga, G. Chudinova,T. Sheshko, E. Boruleva, I. Nagovitsyn, A. Cherednichenko

CHARACTERIZATION AND APPLICATION OF SPENT BREWER'S YEAST FOR SILVER NANOPARTICLES SYNTHESIS

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S1P24

The brewer's yeast is an abundant and valuable by-product of the beer industry. In the last years a numerous studies focused on different possibilities for its valorization. The aim of the present study was to characterize spent brewer's yeast and to investigate its application as reducing agent with combination of extracts of *Rosa damascena* wastes for synthesis of silver nanoparticles (AgNPs). The non-pasteurized and pasteurized brewer's yeast was found to contain lower amounts of phenolic compounds: 8.40 and 1.53 μmolGAE/100 mL, respectively, but were rich in carbohydrates (40.20±1.5%), proteins (41.33±0.11%) and dietary fibres (23.94±1.5%). The water extract of *Rosa damascena* waste was able quickly to reduce the Ag^+ and AgNPs with irregular sphere-like shape were formed. This is typical for the AgNPs obtained by reduction with extracts rich in polyphenols. The pasteurized and non-pasteurized brewer's yeasts gave AgNPs (as suggested by visual observation and by UV-Vis measurements) relatively slowly but the average particle size was smaller than the synthesized by water extract of *Rosa damascena* waste. The combinations of pasteurized and non-pasteurized brewer's yeast with water extract of *Rosa damascena* waste also were able relatively quickly to produce AgNPs. The transmission electron microscope images confirmed the observed synthesis of AgNPs.

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EFFECTIVE ACTIVATION OF PMS BY Co, Bi AND Mg DOPED g-C_3N_4 FOR ORGANIC DYES OXIDATIVE DEGRADATION

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S1P26

A series of Co, Co-Mg and Co-Bi modified *g*-C_3N_4 composites with 5 wt.% of the metal dopant were synthesized by a facile one-pot thermal polycondensation method using melamine (pure and HNO_3-protonated) and corresponding metal nitrate as precursors. The as-prepared samples were characterized by means of XRD, TEM, BET, ICP-OES, and IR-spectroscopy. The catalytic activity of the synthesized catalysts was evaluated for the generation of active radicals from PMS for degradation of model dyes Acid Orange 7 (AO7) and Methylene blue (MB) in aqueous solutions at ambient conditions. Results showed that pristine g-C_3N_4 does not exhibit catalytic activity, while modified with metal oxides carbon nitride samples were demonstrated to own remarkably enhanced PMS activating ability resulting in considerable acceleration of dyes degradation process. Samples synthesized from protonated melamine exhibit better catalytic performances due to the more complete condensation of *g*-C_3N_4 and to the larger specific surface area. The Co-Mg-*g*-C_3N_4 and Co-Bi-*g*-C_3N_4 composites presented the highest catalytic activity with complete AO7 and MB removed in 10 – 15 min and 30 – 60 min, respectively, under the following conditions: [catalyst] = 0.1 g L^{-1}, [PMS] /[dye] ratio =5/1, pH =3.0 and [AO7] = 50 mg L^{-1}, [MB] = 20 mg L^{-1}. The much better performance for PMS activation exhibited by both catalysts could be attributed to the good dispersion of the metal oxide particles in C_3N_4 sheets and to the increased basicity of the surface of the samples by the additional doping with Mg and Bi. The latter would favor the formation of surface Co-OH complexes and promote the activation of PMS. The degradation of AO7 and MB was found to follow the first order kinetics. The effect of catalyst dosage, PMS concentration, and pH on the rate of dyes oxidation was investigated. The radical species generated from the catalytic decomposition of PMS were identified by quenching studies.

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