University of Plovdiv "Paisii Hilendarski"
Faculty of Chemistry

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

Book of abstracts

Saturday 13 October 2018 — *Conference Hall Plovdiv*

SECTION 4 Physical chemistry

13:50 – 14:10	S4L2	**Study of the effect of structure on the kinetics and mechanism of Fe(III)/Fe(II) complexes** *R. Khattak, I. Naqvi* Shaheed Benazir Bhutto Women University, Peshawar, Pakistan
14:10 – 14:30	S4L3	**Catalytic performance of $LnFeO_3$ complex oxides for dry reforming of methane to synthesis gas** *V. Kost, A. Sizykh, T. Kryuchkova, V. Zimina, T. Sheshko, A. Cherednichenko, V. Kurilkin, M. Safronenko* Peoples' Friendship University of Russia (RUDN University)
14:30 – 14:50	S4L4	**Polyelectrolyte-modified kaolinite nanocontainers for entrapment of corrosion inhibitor benzotriazole** *K. Kamburova, Ts. Radeva* BAS, Institute of Physical Chemistry, Bulgaria

Saturday 13 October 2018 — *Conference Hall Dioulpa*

SECTION 5 Food chemistry

Chairman
M. Zlatanov

LECTURES

13:30 – 13:50	S5L1	**A comparative study on chemical and lipid composition of amaranth seeds (Amaranthus caudatus L.) with different origin.** *Zh. Petkova, G. Antova, M. Angelova-Romova, I. Vaseva* University of Plovdiv "Paisii Hilendarski", Bulgaria
13:50 – 14:10	S5L2	**Morphological and biochemical diversity of common bean landraces** *T. Stoilova, G. Antova, P. Chavdarov, N. Velcheva* Institute of Plant genetic Resources, Sadovo, Bulgaria
14:10 – 14:30	S5L3	**Utilization of essential oil industry Chamomile wastes as source of polyphenols** *N. Yantcheva, I. Vasileva, V. Shikov, P. Denev, H. Fidan, R. Denkova, A. Slavov* University of Food Technologies Plovdiv, Bulgaria
14:30 – 14:50	S5L4	**"Green" synthesis of gold nanoparticles with Rosa damascena waste and brewer's yeast** *A. Slavov, I. Vasileva, D. Karashanova, B. Georgieva, R. Dinkova, Y. Georgiev, V. Shikov* University of Food Technologies Plovdiv, Bulgaria

POSTER SESSIONS

Friday 12 October 2018 — *16:50 – 18:50*

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

Code	Title	Authors
S1P1	**Phenol profile and antioxidant activity of wild growing Nectaroscordum siculum ssp. Bulgaricum (Janka) Stearn**	*R. Vrancheva, M. Stoyanova, D. Myhailova, I. Aneva, I. Deseva, N. Petkova, I. Ivanov, A. Pavlov*
S1P2	**Phytochemical analysis and *in vitro* antioxidant activity of grains**	*R. Vrancheva, L. Krystev, A. Popova, D. Mihaylova, A. Krastanov*
S1P3	**Phytochemical profile and antioxidant activity of water pepper (Polygonum hydropiper L.)**	*D. Mihaylova, R. Vrancheva, I. Ivanov, A. Popova*
S1P4	**Culinary herbs (Tarragon, Wild garlic and Samardala) – sources of antioxidants and prebiotics**	*N. Petkova, I. Ivanov, M. Topuzova, M. Todorova, P. Denev*
S1P5	**Lipid composition of watermelon (Citrullus lanatus) seed oil**	*M. Angelova – Romova, Zh. Simeonova, Zh. Petkova, G. Antova, O. Teneva*
S1P6	**Fatty acids composition of purslane (Portulaca oleracea L.) extracted by supercritical CO_2**	*S. Taneva, S. Momchilova, Y. Nikolova, A. Konakchiev, D. Antonova, V. Dimitrov*
S1P7	**Composition of residual lipids isolated from Salinomycin**	*B. Chuchkov, G. Antova*
S1P8	**Residual levels and tissue distribution of polychlorinated biphenyls (PCBs) in fish from the Danube River, Bulgaria**	*S. Georgieva, M. Stancheva, Z. Peteva*
S1P9	**Total phenolic content and antioxidant activity of R. Damascena dry extract**	*K. Gechovska, V. Deneva, D. Antonova, St. Bojanov and L. Antonov*
S1P10	**Fatty acid, phospholipids, health risk index and daily intake of metals in edible wild mushroom (Tricholoma equestre) from the Batak mountain, Bulgaria**	*L. Dospatliev, M. Ivanova, P. Papazov*
S1P11	**PCA analysis and health risk index of trace elements in nine species wild edible mushrooms from Batak mountain, Bulgaria**	*M. Ivanova, L. Dospatliev, D. Grigorova*

S5L2

MORPHOLOGICAL AND BIOCHEMICAL DIVERSITY OF DRY BEAN LANDRACES

T. Stoilova[1], G. Antova[2], P. Chavdarov[1], N. Velcheva[1]

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[2]*Department of Chemical Technology, University of Plovdiv "Paisii Hilendarski", 24 Tzar Assen Str., 4000 Plovdiv, Bulgaria*

Dry bean is considered as one of the major legume crop with big number of landraces grown in Bulgaria. Landraces are conserved on farm in different geographical regions, which shows a wide morphological and genetic diversity.

The aim of this study was to collect and evaluate local accessions of *Phaseolus vulgaris L.* and *Phaseolus coccineus* from different householders of Sadovo, Smilyan, Troyan and Velingrad regions. The landraces were selected according to their importance and popularization for each region. The most popular and tradition local materials were characterized by different approaches. In this paper we will present results from morphological characterization, phythopathological evaluation and biochemical analyses. During vegetation cycle qualitative and quantitative traits were assessed on 37 accessions of *Phaseolus spp*. The main morphological characters were: growth habit; plant height; size of pods; number of pods/plant; number of seeds/pod and per plant; size, color and shape of seed; 100 seed weight; yield/plant. According to growth habit the majority of observed landraces possess indeterminate growth habit with more than 2m plant height. Most of studied landraces were with long duration of vegetation between 80 and 140 days. The accessions with determinate growth habit were with shorter vegetation cycle of 80 – 90 days. *Phaseolus* landraces have high diversity of seed morphology, seed size, seed shape and seed color. Seed size was analyzed by 100 seed weight and it varies from 55g to 220g. Seeds were uniform and with different baized color: red, beige, violet and with different patterns, striped or mottled. The biggest group of *Ph. vulgaris* seeds were with mottled color, kidney shape and medium size, while *Ph. coccineus* seeds were 50% with uniform color and 50% with mottled color with truncate or kidney shape and big seed size>100g of 100 seed weight.

Results of phythopathological testing under field and laboratory conditions showed sensitive reaction to the main bacterial diseases (*Xanthomonas axonopodis pv. Phaseoli).* Four accessions (A9E1185, A9E1243, A9E1248 and A9E1249) showed middle sensitive reaction, while rest of the group was scored with sensitive reaction to bacterial diseases.

Six local accessions were involved in biochemical analyses with content of lipids, saturated and unsaturated fatty acids, cholesterol content and vitamin E. Results showed that the seeds of different been accessions are a good source biologically active compounds and essential linolenic fatty acid. The seeds of *Phaseolus* spp. are a very important food crop that is also healthy and dietary.

S5L3

UTILIZATION OF ESSENTIAL OIL INDUSTRY CHAMOMILE WASTES AS SOURCE OF POLYPHENOLS

N. Yantcheva[1], I. Vasileva[1], V. Shikov[2], P. Denev[3], H. Fidan[4], R. Denkova[5], A. Slavov[1]

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[2]*Department of Canning Technologies,*
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The annual global production of chamomile (*Matricaria Chamomila*) essential oil was roughly estimated between 80 and 100 tones. Due to the lower content of essential oil in the chamomile (around 0.30-0.45% on dry basis) large quantities of wastes were generated every year by the essential oil industry. The aim of the present work was to investigate the possibility for valorization of chamomile waste. Three wastes were investigated – after extraction of chamomile with 1,1,1,2-tetrafluoroethane (F), after hydrodistillation (HD) and steam distillation (S). It was found that extraction of the raw materials by fluorocarbons preserves to a large extent polyphenols – F wastes had 2697.81±84.90 mg/L total polyphenols compared to 1500.30±36.22 mg/L and 366.24±26.37 for S and HD wastes, respectively. Similar trend was observed for antioxidant activity results: F wastes showed 31235.42±238.21 μmol TE/L (by ORAC method) and 12235.23±267.68 μmol GAE/L (by HORAC method) while S showed 2 times (by ORAC method) and 3 times (by HORAC method) lower values. The individual phenolic acids and flavonoids were determined by HPLC and the main compounds found were p-coumaric acid, chlorogenic acid, catechin, quercetin, and naringin. By GC-MS were investigated polar metabolites and aroma compounds in the ethanolic extracts. The results suggested that the chamomile waste could be a valuable and cheap source for obtaining of by-products with pronounced antioxidant activity.

Acknowledgements: We acknowledge the financial support from the National Science Fund of Bulgaria; project DN 17/22 from 12.12.2017: Valorization and application of essential oil industry wastes for "green" synthesis of metal nanoparticles.