



## Poster Abstracts

To cite this article: (2021) Poster Abstracts, Biotechnology & Biotechnological Equipment, 35:sup1, S62-S128, DOI: [10.1080/13102818.2020.1871545](https://doi.org/10.1080/13102818.2020.1871545)

To link to this article: <https://doi.org/10.1080/13102818.2020.1871545>



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Published online: 26 Feb 2021.



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and 4-nitrophenyl- $\beta$ -D-glucopyranoside, respectively. Generally, the addition of extracts has a strong inhibitory effect on  $\alpha$ -glucosidase enzyme. Extracts from the bark of *S. viminalis*, *S. purpurea*, *P. nigra*  $\times$  *P. maximo-wiczii* caused about 100% inhibition of the enzyme and the plant extracts generally stimulated the activity of the  $\beta$ -galactosidase. The highest enzyme activity 175–8500 JAG/ $\mu$ g GAE was obtained in a medium with an extract from wood of *P. nigra*.

Funding: This work was co-financed by the National Centre for Research and Development (NCBiR), BIOSTRATEG3/344253/2/NCBR/2017.

### Trends in the consumer behaviour of animal products from Mehedinti County

**Eugen Zoican, Diana Marin, Marinela Lidia Bold, Ioan Petroman, Loredana Văduva and Cornelia Petroman**

*Faculty of Management and Rural Tourism, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timisoara, Romania*

*email address: zoicane@yahoo.com.* The food problem has become more acute and has acquired quantitatively and qualitatively new features and dimensions, from a local or national problem, it has become a global problem, encompassing all levels of contemporary society, the population from the area under analysis, Mehedinii County has become increasingly aware of the importance of consuming quality food for health insurance. The issue of consumption has become extremely complex, which is why we highlight the original and novel aspects related to the consumption of animal products, how consumers try to meet their consumption needs. We find that consumers of animal products are oriented towards diversity, variety, change and permanent renewal in terms of consumed products. The tastes and demands of consumers vary profoundly from one individual to another, this diversity must be manifested through the offer of products offered on the market. A significant change in consumer behaviour refers to the preference of consumers with middle-income, who are experiencing a decline in purchasing power, purchasing products not necessarily from commercial spaces. The case study realized is actually a statistical survey, which was based on the questionnaire, applied to consumers from Mehedinti County, the questions referring to preferences regarding of animal products.

### Extraction of bioactive compounds from seeds of *Echinocystis lobata*

**Olga Shelepova and Yulia Vinogradova**

*Laboratory of Plant Physiology and Biochemistry, Tsitsin Main Botanical Garden of Russian Academy of Sciences, Moscow, Russia*

*Laboratory of Natural Flora, Tsitsin Main Botanical Garden of Russian Academy of Sciences, Moscow, Russia*

*email address: shov\_gbsad@mail.ru.* The most important in terms of use in traditional folk medicine is *Echinocystis lobata* (Michx.) Torr. et A. Gray. The main pharmacological effect of *E. lobata* is analgesic effect (for stomach pain, kidney diseases, rheumatism, for chills and fever). We have found that seeds of *E. lobata* may be a valuable source of lipids, such as polyunsaturated fatty acids (nearly 75% of the weight). The HPLC chromatographic profile of oil obtained from seeds of *E. lobata* revealed the presence of eight major compounds, mainly conjugated linolenic acid, with a concentration of 59%–67% of the total fatty acids content. The antioxidant activity of the seeds extract was assessed by the DPPH method. The extract showed a high antioxidant activity. The pericarp, the stem and the leaves of the plant are also a good source of phenolic compounds, which can be useful to protect from oxidative damage by acting on reactive oxygen. The results of the study highlight the importance of products obtained from the non-traditional plants, these products that can be harnessed as rich and important sources of biologically active compounds.

Funding: The work was supported by the Ministry of education and science of Russian Federation (project 19-119080590035-9).

### Oxidative stress in type 2 diabetes

**Arailym Yessenbekova, Botagoz Ussipbek, Nurzhanyat Ablaihanova, Iryna Rusanova, Aizada Kozhakhmetova, Zura Yessimsiitova, Dinara Batyrbayeva and Lyazzat Umbetyarova**

*Department of Biophysics and Biomedicine, Al-Farabi Kazakh National University, Almaty, Kazakhstan*

*University of Granada, Granada, Spain*

*Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan*

*email address: arailmyessenbekova@gmail.com.* This study is based on data collected from 70 patients with type 2 diabetes mellitus. The average age is 50

years and disease duration is 5 years. Glycated hemoglobin (HbA1c) – 8.9%. The control group of 20 patients matched by sex and age. The diagnosis for diabetes mellitus 2 and the degree of compensation for carbohydrate metabolism were established using recommendations from WHO and the National Standards for patients with diabetes mellitus. HbA1c was detected using a Bio-Rad liquid chromatography and standard kits (France). Total antioxidant activity (TAA) were measured using induced chemiluminescence. The collected data were processed using the STATISTICA 6.0 (StatSoft, Inc., USA). It was found that activation of free radical oxidation and statistically significant increase in intensity of free radical oxidation  $1.772 \pm 0.064$  ( $p < 0.001$ ) and in the control group by  $1.572 \pm 0.142$ . Reduced TAA  $0.033 \pm 0.005$  ( $p = 0.003$ ) were in this group of patients compared to control group  $0.038 \pm 0.005$ . This suggests that the development of free radical oxidation in a quiescent state is staged, where oxidized modified proteins are inactive. However, further generation of radicals activates oxidative modification of proteins, which stimulates lipid peroxidation, serves as an additional source of free radicals, inactivates antioxidant enzymes.

### **Changes in the morphology of red blood cells and the state of cyto-skeleton proteins under experimental hypoxia**

***Natalya Yuryevna Ratnikova, Victor Vasilevich Revin, Natalia Vasilevna Gromova, Elvira Sergeevna Revina, Nadezhda Victorovna Revina, Igor Pavlovich Grunyushkin, Vera Ivanovna Inchina, Vasilisa Mikhailovna Kudryashova and Julia Nikolaevna Fedkina***

*Department of Biotechnology and Biology, Ogarev Mordovia State University, Saransk, Russia*  
*email address: natalya\_ratnikova.00@mail.ru.* The method of AFM spectroscopy during hypoxia revealed a change in the shape of cells and the transition of erythrocytes to echinocytes and stomatocytes. Incubation under conditions of erythrocytes hypoxia with quercetin led to an increase in the proportion of transitional and echinocytic forms in the samples, and the diameter and thickness of the cells increased. In the presence of resveratrol, discocytes prevailed in the samples, and the diameter and thickness of the cells did not differ from the control. The main erythrocyte membrane proteins were isolated by electrophoresis. During hypoxia, the amount of spectrin, ankirin, band 3 protein, glyceraldehyde-3-phosphate dehydrogenase (GAPDH) decreased, and proteins of bands 4.1 and 4.2 were absent. When flavonoids were

added under hypoxic conditions, the amount of spectrin and GAPDH increased, proteins of band 4.1 and 4.2 were absent, and the content of band 3 protein and ankyrin decreased. The actin content does not change in all samples. Thus, hypoxia causes changes at all levels of the organization of erythrocytes, and this may be the cause of functional disorders of the oxygen-transporting properties of hemoglobin and, subsequently, the complete degradation of erythrocytes. The use of flavonoids in this case has a protective effect on erythrocytes.

Funding: This work was supported by the Russian Science Foundation, Grant No. 15-15-10025.

### **The effect of natural polyphenols on lipid peroxidation in red blood cells during hypoxia**

***Tatyana Olegovna Oshkina, Nadezhda Victorovna Revina, Natalia Vasilevna Gromova, Elvira Sergeevna Revina, Igor Pavlovich Grunyushkin, Vera Ivanovna Inchina, Victor Vasilevich Revin, Vera Vasilevna Vdovina, Natalya Alexandrovna Ermusheva and Tatyana Nikolaevna Shcherbakova***

*Department of Biotechnology and Biology, Ogarev Mordovia State University, Saransk, Russia*

*email address: oshkina84@gmail.com.* In erythrocytes under experimental hypoxia, the lipid peroxidation products were determined – the content of diene conjugates (DC) and the concentration of TBA-active products (TBARS). The effect of natural polyphenolic compounds (quercetin and resveratrol) on the state of oxidative processes in red cells was also studied. It was shown that under hypoxia there was a significant increase in the number of lipid peroxidation products. When incubated under similar conditions, but with the additional presence of quercetin and resveratrol, there was a decrease in the amount of DC, and in the case of resveratrol, almost to the level of normoxia. The amount of TBARS under hypoxic conditions varied in a similar way. The presence of antioxidants in the incubation medium led to a decrease in the number of TBARS, but the level of control was never achieved. The intensification of oxidative processes in the lipid bilayer leads to both a change in the composition of fatty acids of individual phospholipids and a phase shift in the state of the bilayer of erythrocyte membranes. The changes taking place contribute to a decrease in the oxygen-binding properties of hemoglobin. Compounds of a flavonoid nature (in particular, resveratrol) had a protective effect under hypoxia.

Funding: This work was supported by the Russian Science Foundation, Grant No. 15-15-10025.