catechins as inhibitors of bovine PrAO. The methylxanthines tested were caffeine, paraxanthine, theophylline, theobromine and 7-methylxanthine. Of these, only theobromine was an inhibitor with an IC50 of ca. 300 μM. Calculations indicated that theobromine in foods could inhibit PrAO activity by 20%. The effect of dietary catechins; epicatechin, epicatechin gallate and epigallocatechingallate was even more significant with IC50 values in the micromolar region. However, inhibition by catechins was complicated by apparent activation of PrAO at high concentrations although this was not significant at physiologically attainable levels. Nonetheless, these findings indicate that a range of dietary phytochemicals could affect PrAO activity in vivo. We suggest that the health benefits associated with consumption of certain phytochemicals may be attributed to PrAO inhibition.

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Plant Biotechnology

Determination of some phenotypic characters of transgenic common beans (*Phaseolus vulgaris* L.) genotypes in greenhouse condition

Sevil Saglam

Department of Agricultural Biotechnology, Faculty of Agriculture, Ahi Evran University, Kirsehir, Turkey

E-mail address: saglamsevil@gmail.com.

This research was made in greenhouse conditions to determination of some phenotypic characters of the dry bean lines which developed by gene transformation via Agrobacterium tumefaciens. It was conducted in Ahi Evran University, Department of Agricultural Biotechnology, Kirsehir/Turkey in 'viols and pots' in 2013. In the trial, Akman 98 and Karacasehir 90 common bean (*Phaseolus vulgaris* L.) transgenic and conventional lines were used as material. The obtained data from trial showed that the onset of germination occurred on the 4th day in every genotypes and also transgenic and conventional lines. The germination rates were observed 8–100% in the transgenic seeds of Akman 98; 8–33% in the transgenic seeds of Karacasehir 90. There were no differences on flower colors and all parameters of the transgenic and conventional lines. Except for leaf type in one transgenic plant. The cause of this change may be genetic, environmental factors or a hypomorphic mutation.

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Effect of a biostimulator on production of sugar beet grows in dry climates of Kazakhstan

Kakimova Ardak[1], Bukenova Elmira[2], Basygaraev Zhandos[1], Ydyrys Alibek[1], Lyazzat Umbetyarova[1], Ablaikhanova Nurzhanat[1,*], Omargazy Yergali[1], Ussipbek Botagoz[1], Zhumabekova Zhazira[3]

[1] *Al-Farabi Kazakh National University, Kazakhstan*
[2] *L.N. Gumilyov Eurasian National University, Kazakhstan*
[3] *S. Seifullin Kazakh Agro Technical University, Kazakhstan*

E-mail address: Nurzhanat.Ablaihanova@kaznu.kz (A. Nurzhanat).

Kazakhstan successful has been conducting agricultural policy, because there are large areas of dry climates land. For development of processing agricultural raw materials, the agricultural policy has attempted to subsidies for operational costs and interests of credit, cooperation of production and processing of agricultural products. Biostimulator could be used as powerful hormonal substance that has ability to increase productivity and salt tolerance of agricultural plants. We took B.E. Sultanbaev's method as a basis in purifying biostimulator, but we have made some changes. Experiments were carried out as follows: 3 liters of boiled water was lead up to room temperature and 0.1 mM of 6-BAP is necessary for formation of our biostimulator. We tested the effect of biostimulator on increasing of productivity of the important agricultural plant – sugar beet. Experiments were carried out on the area in hectares. Results of experiments ware showed seeds of the sugar beet by a solution of a biostimulator (concentration of 10 ng/ml) raises productivity of beet on the average by 20%. It was established that our new biostimulator by its chemical composition relates to fusicoccin.

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Complex processing of rice husk and using in biomedical applications

S. Aknazarov[1,2,*], N. Ablaikhanova[1], O. Golovchenko[1], Z. Yessimsiitova[1], S. Tuleukhanov[1], Nurzat Ablaikhanova[1]

[1] *Al-Farabi Kazakh National University, Almaty, Kazakhstan*
[2] *Institute of Combustion Problems, Almaty, Kazakhstan*

E-mail address: sestager@mail.ru (S. Aknazarov).

In this study, we used rice husk for biomedical purposes. Often, waste producers are not even aware of the possibility of their use as raw materials for biomedical application. Still, the main role plays the lack of the integrated technologies that address regional conditions, although information about many processes of processing is extensive and requires relatively little data for the full development of the technological parameters of production.

The main part of the research devoted to finding ways to improve the properties of the husks and setting its maximum allowable concentration when used in biomedical applications. Shredded husk can serve as different sorbent materials. Rice husks, subjected to deep processing, can be used to produce a number of inorganic and organic ingredients: silicon compounds – dioxide, silicon carbide, silicon nitride, silicon tetrachloride, pure silicon, silicates, carbon, xylose, polysaccharides, furfural, etc. It should be noted that when the thermal decomposition of rice husk is allocated a significant amount of volatile substances. Their composition studied in include oxides of carbon, hydrogen and water vapor, a number of organic acids, aldehydes and their derivatives. Carcinogenic substances were not detected. As research have shown, powder obtained by pyrolysis – black material consisting mainly of carbon (50–55 wt.%) and silicon dioxide (40–45 wt.%) is promising sorbent for biomedical applications.

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