

the control variety to the level of untreated Adesso variety, 3 treatments were necessary. On the other hand, a single treatment with fungicides applied to the Adesso variety has reduced the attack degree with only 4.7%, a response considered to be insignificant and unjustified from economically and ecologically point of view. Yields level was in inverse proportion to the attack degree evolution, being favourable with +29% to the same Adesso variety. In this way can be assessed that the Environmental Toxicological Impact of (ETI) generated by the fungicide treatments application it was with approximately 25% in behalf of the premium wheat variety in the study ( $ETI_{Adesso} = 4 \times ETI_{Control}$ ).

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### **P (Tannic Acid) hydrogel template for in situ metal nanoparticle preparation and use as catalyst for elimination of toxic organic compounds**



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Hydrogels based on natural tannic acid (TA) as poly (Tannic Acid) (p(TA)) were synthesized using trimethylolpropane triglycidyl ether (TMPGDE) as crosslinker. The prepared p(TA) hydrogel was treated with sodium hydroxide (NaOH) and ammonia (NH<sub>3</sub>) to increase the absorption capacity of Co (II), Ni (II), and Cu (II) ions. Then, the metal ion loaded p(TA) hydrogel was treated with NaBH<sub>4</sub> to obtain the corresponding metal nanoparticles within p(TA) network. The prepared p(TA)-M (M:Co, Ni, Cu) composites were then used as catalyst in the reduction of toxic organic compounds such as 4-nitrophenol (4-NP), 2-nitrophenol (2-NP), and organic dyes such as methylene blue (MB) and eosin Y (EY). Bare and the modified p(TA) hydrogel were characterized via FT-IR, thermogravimetric analyzer (TGA), zeta potential measurements, and the metal nanoparticles inside p(TA)-M composite were visualized by TEM. The metal ions content of p(TA)-M composite hydrogels were determined by the solution of metal nanoparticles within p(TA) network by HCl treatment, and determining their amount by Atomic Absorption Spectroscopy (AAS). The effects of metal nanoparticle types on 4-NP and 2-NP reduction and MB and EY decolorization reactions were measured. Also, various parameters such as reaction temperatures, reusability of the catalysts, and so on were investigated.

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### **Search of ESR1 gene polymorphisms association in Kazakhs and Russians with BC risk**



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Breast cancer (BC) occupies a leading position among oncological diseases in most countries of the world. The development of BC is related to effect of estrogen receptors, encoded by genes, including ESR1, which can be considered as a molecular marker for personalized treatment.

In the research, conducted by case-control method, ESR1 gene testing (rs2046210, rs3757318) was carried out by PCR-RFLP. Association of ESR1 gene polymorphisms with BC has been identified neither in Kazakh (rs2046210:  $p=0.54$  for genotypes,  $p=0.32$  for alleles; rs3757318:  $p=0.4$  for genotypes,  $p=0.2$  for the alleles), nor in Russian ethnic group (rs2046210:  $p=0.48$  for genotypes,  $p=0.42$  for alleles; rs3757318:  $p=0.82$  for genotypes,  $p=0.55$  for alleles). Data on the distribution of genotypes and allele frequencies corresponded to HWE.

Despite of number studies had shown positive association of rs2046210, rs3757318, our obtained results differ from these. For instance, in meta-analysis, containing 11 studies with 62.891 cases and 65.635 controls, the rs3757318 – A allele was significantly associated with BC risk ( $p < 0.001$ ).

Consequently, ESR1 gene polymorphisms (rs2046210, rs3757318) cannot be considered as a breast cancer marker in Kazakh and Russian ethnic groups of Kazakhstan, despite the association with increased BC risk in the other world populations.

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### **Influence of accommodation area on welfare fattening cattle**



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Nowadays, in the intensive livestock farming major importance is assigned to ensure the animals' comfort. Although the production of beef in Romania has not yet spread wide, the objective of this study was set to investigate how the type of floor can influence the welfare of fattening beef cattle in two commercial farms, assessing their health status, behavior and performances. The study focused on a number of 168 fattening cattle housed on slatted floor (group A,  $n: 88$ ) and animals accommodated in shelters providing continuous floor with straw litter (group B,  $n: 80$ ). Lameness incidence ranged from 1.2% in group B and 2.2% in group A and body hygiene registered a higher percentage of animals in group B (5%) than in group A (1.1%). Among the behavioral manifestations, rest was recorded in a higher percentage in group B (39%) than in group A (20%) and the average daily gain was higher in group A (1310 g/day) than group B (1050 g/day). The results of this study showed that in this fattening cattle phase the type of floor influenced not only the beef cattle productivity but also their welfare.

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