

usable explant numbers, branch numbers, root lengths, root scores, fresh weights and dry weights were examined as growth parameters. Numbers of usable explants were found to be between 4.1 and 5.8 per explant. The results revealed that the growth parameters of wild lemon balm did not significantly differ from those obtained on IBA supplemented media.

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Creating valuable forms and varieties of potatoes that are resistant to fungal diseases

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Potato is important crop in Kazakhstan as it is one of the main foods for population. Purpose of our research is creation of valuable forms and varieties of potato selected for resistance to Fusarium dry rot. The objects of study are potato cultivars of Kazakhstan selection. In this work we utilized biotechnology, microbiology and molecular methods of analysis. Procedure for selection for resistance to Fusarium dry rot was optimized. In total 1474 test-tube potato plants were regenerated from potato of varieties Karasay, Tokhtar, Bakshi Tamyr grown on selective media with the Fusarium solani CF. Concentrations of CF were 10%, 30% and 50%. From 1474 test-tube lines were obtained 1056 adult plants grown in the greenhouse. Regenerated potato plants were transferred into field and evaluated for morphological, genetic and agronomic characteristics. Thus we obtained valuable potato genotypes K 4-1, K 4-2, K 4-3, K 4-7, K 4-8, K 4-9 and K 4-10 in generation R5, which showed resistance to fusarium. The mentioned potato genotypes were evaluated for agriculturally important characteristics in two ecological zones of Kazakhstan, North and South Kazakhstan. The environmental testing for a range of agronomic traits, particularly yields and fusarium resistance, allowed us to select a promising potatoes line K 4-7, which was submitted to the State variety trials. In 2011, this potato genotype was assigned new variety named Asiada. The utilization of the selected set of RAPD primers allowed us to identify potato line K 4-7 which was the base genotype for the Asiada potato variety.

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Micropropagation of *Stevia rebaudiana* Bertoni in Kazakhstan

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Stevia (Stevia rebaudiana Bert.) produces a number of high-potency low-calorie sweeteners in its leaf tissue. *Stevia* is helpful for hypoglycemia and diabetes. Sexual reproduction of *stevia* in Kazakhstan is complicated because of a bad maturing of seeds and low viability of seeds in this ecological conditions. The aim of the work was to identify the suitable sources of explants for micropropagation and to find out suitable media for micropropagation. *In vitro*

propagation of *Stevia* was attempted by seeds (obtained from plants adapted to the conditions of Southern Kazakhstan and seeds imported from Russia), shoot tips and nodal segments. 1/10 MS medium without hormones and with new sulfur – organic growth regulators (T-10, T-10', T-10'') were used for germination of seeds, MS and ½ MS media were used for shoot proliferation as well as root regeneration.

The level of germination of seeds derived from plants cultivated by us in field condition was higher (95–100%) than that from Russia (15–30%) (unpublished data). A positive effect on seed germination of sulfur hormones T-10 (0.1%, 0.01%), T-10' (0.001%), T-10'' (0.01%, 0.001%) was shown. 1/2 MS medium was more effective than full MS for shoot and root proliferation. 1/2 MS supplemented with NAA (0.1 mg/l) was the best medium for rooting of microcuttings.

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Protective effect of Sea-buckthorn berries (*Hyppophae rhamnoides*) oil on experimental Ochratoxicosis in broiler chickens

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Numerous experimental researches showed Ochratoxin A as potent nephrotoxic, hepatotoxic, and immunosuppressive for bird, animals and humans. Sea-buckthorn berries (*Hyppophae rhamnoides*) extracts proved antioxidant and antitumoral actions. The study proved the protective effect of sea-buckthorn berries oil in broiler chickens experimentally exposed to ochratoxin A. In this context, extensive investigations were conducted on eighty broiler chickens (Ross 307) which beginning with the 7th day of their life were randomly separated in four groups (E1 – group treated with ochratoxin A 54 µg/kg/day, during 21 days; E2 – group treated with ochratoxin A 54 µg/kg/day and sea-buckthorn berries oil 200 U.I./day; E3 – group treated with sea-buckthorn berries oil 200 U.I./day and a control group who received oleum helianti 0.3 ml/day). The chickens received the same commercial food (free of ochratoxin A), and were kept in the same environmental conditions. Five chickens from each group were killed at 7th, 14th, and 21st day of the experiment in order to evaluate liver and kidney macroscopic and microscopic lesions and the concentration of ochratoxin A in these organs. At the end of the experiment in chickens from E1 group we have observed steatosis and microscopically lesions suggestive for hepatocarcinoma whereas in chickens from E2 groups microscopically regenerative foci in the liver were observed. The concentration of the residual amount of ochratoxin A in liver and kidney was significantly smaller in E2 groups (1.583 ± 0.393 µg/ml respectively 1.712 ± 0.513) than in E1 group (2.671 ± 0.510 µg/ml, respectively 3.903 ± 0.491).

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The effect of *in vitro* competition on shoot regeneration from cotyledon node explants of *Lathyrus chrysanthus* Boiss

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This study was aimed to determine the effect of *in vitro* competition among cotyledon node explants on tissue culture response