DEVELOPMENT OF APPROACH FOR OBTAINMENT OF *BRACHYPODIUM DISTACHYON L.*REGENERATIVE PLANTS WITH MORPHOGENETIC STABILITY

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### Abstract (300 word limit)

The aim of the research is development of effective methodological approaches of *in vitro* cultivation, object 21 line (BD21) *B. distachyon*.

In purpose to develop cultivation methods, ability for callus formation, regeneration of generative and vegetative organs of VD21 was studied. To cultivate, Linsmayer-Skoog and Murashige-Skoog medium with additional introduction of phytohormones was used. Aseptic culture conditions for callusogenesis cultivation: under dark conditions at a temperature of 24 ° C, for t shoots regeneration - 16/8-hour photoperiod and lighting 3000 lux.

Inflorescence and immature embryos isolated from green spikes of vegetating plants and isolated embryos from mature seeds were used as primary explants to induce callus formation *in vitro*.

In the time of immature embryo cultivation, callus formation takes place near ​​the corimbe for 20-25 days. In the cultivation of whole caryopsis with mature embryos, the sprouts grew after a week of cultivation on MS medium without hormones. The level of maturity of isolated caryopsis has a significantly influence on the callus formation and the type of callus tissue. The mature caryopsis formed callus on the 10th day of cultivation with a frequency of 75%. The cultivation of the overgrown caryopsis in the dark on medium MS 1 with 2 mg / L 2.4 DPA led to the formation of a primary shoot in 60% of explants, the formation of callus in the area of ​​the scute, but for 30-35 days. Passage of the callus on the same medium and on the hormone-free medium led to the appearance of greenish pointwise impregnation of 30% of the calluses.

For microclonal propagation, nodal segments of young shoots of plants were introduced into the culture. To culture introduction, side shoots 5 cm long with 3-4 interstitial sites were cut, the microcrops were planted on inducing media. The shoot-forming capacity of primary explants was about 59%, the multiplication factor for two passages was 5.7.

### Recent Publications (minimum 5)

1. Omirbekova N., Zhussupova A., Kenzhebaeva S., Zhunusbayeva Zh. (2016) Study of storage proteins in endosperm and antioxidant enzymes activity of soft wheat and *Brachypodium distachyon* infected by *Puccinia recondite.* 16thInternational Multidisciplinary Scientific Geoconferences SGEM. II: 767-774.
2. Omirbekova N., Kenzhebayeva S., Doktyrbay G. et al (2016) Frequency of vernalization requirement associated dominant *VRN-A1* gene and earliness related *Esp-A1* candidate genes in advanced wheat mutant lines and effect of allele on flowering time. International Journal of Biology and Chemistry. 9: 24 – 30.
3. Omirbekova N., Kenzhebayeva S., Capstaff N., Fatma Sarsu et al Miller (2017) Searching a spring wheat mutation resource for correlations between yield, grain size, and quality parameters. Journal of Crop Improvement. 31: 209-228.
4. Omirbekova N. Zh., Askanbaeva BN, Egiztayeva B.N., Kenzhebayeva S.S., Zhusupova A.I., Zhunusbaeva Zh.K., Safonov D. (2016) Comparative study of the influence of *Puccinia recondita* on the elements of productivity and protein content in grain of soft wheat *Triticum aestivum* and wild cereals *Brachypodium distachyon*. KazNU BULLETIN. Biological series. 3 (68): 125-132.
5. Omirbekova N., Zhussupova A., Zhunusbayeva Zh. (2015) Brachypodium distachyon as a model plant in wheat rust research. International Journal of Biology and Chemistry.2: 52 – 55.



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