

Obtaining of Callus Tissue for Representatives of the Genus *Amaranthus* L.

Olga YAROSHKO, Mikola KUCHUK

Institute of Cell Biology and Genetic Engineering NASU
90tigeryaroshko90@gmail.com

Aim of the study: The aim of this work was to induce the formation of callus tissue of *Amaranthus caudatus* L. the varieties "Helios", "Karmin", Kremovyi rannii", hybrids *A. paniculatus* L. x *A. caudatus* L. variety "Sterkh", *A. caudatus* x cv. "Sterkh" variety "Zhaivir".

Material and Methods: Plant culture *invitro* methods and statistical methods were used. The object of the research was *A. caudatus* 'Helios', "Karmin", Kremovyi rannii", hybrids *A. paniculatus* L. x *A. caudatus* L. variety "Sterkh", *A. caudatus* x cv. "Sterkh" variety "Zhaivir". The starting material for callus was hypocotils of 1 cm in length, obtained from 7-day-old seedlings grown *in vitro*. The explants were cultured horizontally for 2 weeks on medium Murasige and Skuga (MS₃₀), which contained 30 g/l sucrose, pH 5,7-5,9, with adding kinetin (Kin) and 2,4-dichlorophenoxyacetic acid (2,4-D) in concentration 1 mg/l 2,4-D and 1 mg/l Kin. The growth index was used to estimate the growth of biomass. The growth index is the ratio of the mass of raw callus tissue (m_2) that was obtained after 2 weeks of cultivation on the nutritive agarized medium MS₃₀ with respect to the weight of the raw callus (m_1) obtained at the beginning of the experiment on the same nutritive medium. Growth index = m_2/m_1 . The experiment was conducted in 6 replicates for each variety.

Results: As a result of the experiment, calus tissue was obtained. The average arithmetic growth index for "Helios" was 11, for "Karmin" - 9, for Kremovyi rannii "- 11, for" Sterkh "- 7, for" Zhaivir "- 15. The callus tissue was obtained. The medium for obtaining a stable callus culture was Murasige and Skuga (MS₃₀) supplemented with 30 g/l of sucrose), 1 mg/l of 2,4-dichlorophenoxyacetic acid and 1 mg/l of kinetin. The obtained rates of the growth index from 9 to 15 indicate a high morphogenic potential of the experimental varieties.

Keywords: *Amaranthus caudatus* L., *Amaranthus paniculatus* L., callus culture.