

Effects of the distance interaction of the irradiated and unirradiated plantsA. Kravets^a and G. Venggen^b^a*Institute of Cell biology and genetic engineering, National academy of science of Ukraine, 03022 Kiev, Ukraine;* ^b*Institute of Cell biology and genetic engineering, Vasilkovskaya st.31/17, 03022 Kiev, Ukraine**kravetsap@yahoo.com*

The effects of the distance interaction between the irradiated and unirradiated corn seedlings in the conditions of water culture were investigated. The change of biological and radiobiology reactions (hormesis, radioadaptation) at the unexposed plants of mixed culture is shown. Oppressing of similar indexes for exposed plants of mixed culture, as compared to the exposed plant of homogeneous culture had been demonstrated. The chart of experiment two stages united. The first stage included the γ -irradiation 3 - days' seedlings (25 Gy), forming of variants of experiment: control, monoculture of irradiated seedlings, mixed culture united 25 irradiated and 5 unirradiated seedlings. Thus the first stage of experiment had 4 variants of plants: 1) Control; 2) Monoculture: seedlings, exposed to the rays in a dose 25 Gy; 3) Mixed culture: seedlings, exposed in dose 25 Gy growing with the unexposed plants; 4) Mixed culture: unexposed seedlings growing with the exposed plants. As the quantitative indexes of plant state it were used the output of chromosomal aberrations and mitotic index in root meristem, rate of growth, fresh mass and dry mass of single seedling. The first stage of experiment showed short-term stimulation of the unexposed plants from the mixed culture and oppressing of the exposed plants from the mixed culture, compared to the exposed plant from monoculture. The second stage followed after 4 days of joint growth of the exposed and unexposed plants. Part of the unexposed plants from mixed culture (30 seedling) and plants from control were γ -irradiated in a dose 25 Gy. Thus, this stage of experiment had 5 variants and 6 types of plant already: 1) Controls seedlings; 2) monoculture of seedlings exposed on 3-day's age; 3) seedlings, exposed on 3 days and united with unexposed; 4) Unexposed seedlings growing in the mixed culture with exposed seedling; 5) Seedlings from a control variant, exposed on 7 days of growth; 6) Seedlings selected from unexposed part of mixed culture and exposed on 7 days of growth. The second stage of experiment demonstrated that unexposed seedlings growing for 4 days in mixed culture show less radiosensitivity (in 2,4 times) compared to seedling from control variant.