The approach of system biology for investigation influence of the low-dose chronic radiation on plants in the Chernobyl alienation zone

While developing in Chernobyl zone plants go through sensitive phases of ontogenesis under an influence of chronic irradiation such as: a) stopping and growth decreased dominant apical meristem at initial term of developing seedlings (at juvenile phase); b) changing a share first and second peaks of flowering; c) developing features between flowering and had being mature seeds phase of ontogenesis.

We found that second peak of flowering flax was grown in condition chronic radiation increasing in compare of control variant. It is might be causing for increasing sterility inflorescences as well as decreasing harvest on Chernobyl zone. Harvest of wild and cultural plants under chronic irradiation were decreasing similar as under influences other stress factors.

Transgenerational adaptive plasticity doesn’t appear to rely on mutations of low frequency level. Our proteomic data point that epigenetic changes may be significant in plants which grow under the influence of chronic irradiation.

Because of inbreeding of flax plants for several generations, seeds carry out degenerative traits. This gradually degrades the quality of seeds and the nutritional value of flax oil.