

CYTOGENETIC VARIABILITY IN *PINUS SYLVESTRIS* L. POPULATIONS EXPERIENCING ANTHROPOGENIC INFLUENCE

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Technogenic pollution has become one of the most significant ecological factors determining biosphere existence and development. An analysis of genetic consequences of the radiation accidents in the South Urals and Chernobyl has shown that mutation and recombination processes are considerably accelerated in plant and animal's populations experiencing technogenic influence. This implies that there are complicated adaptation processes leading to changes in genetic structure of populations and increasing genetic load. *Pinus sylvestris* L. populations growing at the territory of the 'Radon' Leningrad regional radioactive waste reprocessing enterprise and Sosnovy Bor town were monitored 6 years (1997-2002) by a set of cytogenetical and morphological tests. Cytogenetic damage levels within intercalary meristem of needle as well as in root meristem of seedlings were found to significantly exceed corresponding controls. A higher radioresistance of the Scots pine seeds analyzed was demonstrated with an acute γ -radiation that also revealed a selection process directed at an enhancement of repair efficiency and resulting in a shift of mean values of radioresistance in populations towards higher values. An enlargement of variance of studied cytogenetic parameters was found in the populations experiencing technogenic influence. This indicates, with an account of phenomenon of the enhanced radioresistance, that there are processes of cytogenetical adaptation in the investigated regions. An analysis of the structure of ecological-genetical variability was carried out with the purpose of separating two components in the interpopulational variability – the first is engaged to the genetically determined variability of biological characteristics intrinsic for this species, and the second is responsible for the variability originating from anthropogenic contamination of the natural habitat. Changes of these two types of variability were studied in dependence on time and technogenic impact.