

VARIABILITY OF CHROMOSOME NUMBER AND CHROMOSOMAL REARRANGEMENTS IN *PINUS SYLVESTRIS* (PINACEAE) IN ARID CONDITIONS OF THE LOWER VOLGA AND SOUTHERN SIBERIA

T. S. Sedel'nikova^{a,#} and A. V. Pimenov^{a,##}

^a V. N. Sukachev Institute of Forest SB RAS, Federal Research Center "Krasnoyarsk Science Center SB RAS" Akademgorodok, 50/28, Krasnoyarsk, 660036, Russia

[#]e-mail: tss@ksc.krasn.ru

^{##}e-mail: pimenov@ksc.krasn.ru

The main criteria of chromosomal polymorphism, namely the variability of the chromosome number, the level and spectrum of chromosomal rearrangements, were studied in natural populations and artificial plantations of Scots pine (*Pinus sylvestris*) growing in the south of its range in the steppe provenances of the Lower Volga and Southern Siberia (Volgograd Region, Republic of Tyva, Republic of Khakassia). The analysis of chromosomes was performed in the cells of the root meristems of seedlings at the stage of metaphase of mitosis. In the seed progeny of *P. sylvestris* trees from all the studied provenances, a disturbance of the chromosome number, myxoploidy, was detected, the level of its distribution increasing with increase of aridity and deterioration of edaphic growth conditions. In the seed progeny of *P. sylvestris* in the Volgograd Region and Khakassia, chromosome rearrangements represented by ring chromosomes, polycentric chromosomes, fragments, and multiple disturbances were found. A significant increase in the occurrence of chromosomal rearrangements and the expansion of their set is noted in the seedlings from an isolated provenance of *P. sylvestris* in rocky steppe of Khakassia. The frequency of mixoploidy and chromosomal rearrangements occurrence in the intraspecific forms of *P. sylvestris* trees is not the same, which is associated with differences in the conditions of their growth. The revealed cytological instability of seed progeny of trees in the plantations of *P. sylvestris* growing in steppe ecotopes may indicate the activation of microevolutionary processes, apparently accompanied by natural selection of resistant genotypes and forms adapted to arid conditions.

Keywords: *Pinus sylvestris*, intraspecific forms, steppe ecotopes, arid conditions, Lower Volga region, Southern Siberia, myxoploidy, chromosomal rearrangements, cytological instability

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