



The salinization and land degradation processes in recretohalophyte (Tamarix sp.) plant communities

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Tamarix species are widespread in deserts, semi-deserts and steppes of Europe, Asia and North Africa. Tamarix species grow on marginal lands with various salt content (19.29 - 58.97% in 5-10 cm soil horizons) and withstand a different content of toxic salts. Thus, they are crinohalophytes and secrete by the glands predominantly sodium chloride, in smaller amounts of sodium sulfate and calcium (electron microscopic data). Texture and elements of microfeatures analysis showed that the Tamarix grows on layered depositions. However, a prerequisite for its optimal growth and reproduction (regrowth) is growing in the lower parts of meso-or macroslopes. This position of Tamarix plants on the relief was noted in all the studied sites and is due to desalinization of soil crust (10 cm thickness), and that is the main prerequisite for good seed germination or vegetative propagation of Tamarix species. It was found that 3 weeks nonsaline surface soil solutions are required for good seed germination and vegetative propagation (Rusanov, 1944). In nature Tamarix "chooses" lower slopes for getting nonsaline (or slightly mineralized) water, which is flowing to the lower slopes or ravine in the spring after snowmelt. Comparing the chemical composition of salts excreted by Tamarix and the composition of the soil salts, we were obtained the following patterns: 1) Tamarix grows in soils with different salt content and chemical composition of salts (soda, chloride, sulfate-chloride or chloride-sulfate). 2) The content of salts excreted by Tamarix is higher than that accumulated inside the plant; sodium chloride (halite) is predominant. 3) Whatever the chemical composition of solonchaks, the excretion of chloride in Tamarix is higher than that of sulphate. 4) Tamarix has a habitat-forming role in desert areas - it can salinize non-saline soils. That is, promote land degradation. Acknowledgement. The study was supported by the Russian Foundation for Basic Research (no.18-016-00129).

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