

ESTIMATION OF POTENTIAL FROST RESISTANCE LEVEL OF SOME
WOODY SPECIES FROM *ROSACEAE* JUSS. FAMILY

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Article is dedicated to investigation of potential frost resistance of deciduous shrubby introduced plants under conditions of the Right-Bank Forest-Steppe of Ukraine. The origin of all investigated plants is Asia and according to the different climate peculiarities of natural habitats from introduced area the analyze of new introducents resistance to unfavorable season in the Right-Bank Forest-Steppe of Ukraine was required.

The objects of investigations were *Exochorda giraldii* Hesse, *E. racemosa* (Lindl.) Rehd., *E. korolkovii* Lav., *E. tianschanica* Gontsch., *E. × macrantha* (Lemoine) Schneid., *Kerria japonica* (L.) DC., *Photinia villosa* DC., *Prinsepia sinensis* (Oliv.) Kom., *Rhodotypus kerrioides* Sieb. et Zucc., *Stephanandra incisa* (Thunb.) Zbl., and *S. tanakae* Franch. et Sav. which are growing in the arboretum's collection of M.M. Gryshko National Botanical Gardens of NAS of Ukraine. The experiments were conducted on annual shoots of these plants. Potential frost resistance was examined in the period of deep rest in the second decade of January. Our investigations consist of three types of experiments: direct freezing of annual shoots of the plants with further analyze of their tissues damage by the histological microscope observations; differential thermal analyze of ice-forming process in the tissues of the annual shoots of the studied plants; observations of tissues layers in their annual shoots by the method of the fluorescent microscopy.

The results of complex analyze of ice-forming processes in tissues of annual shoots of 11 species from 6 genera of *Rosaceae* Juss. family in connection with their potential frost resistance are shown. The range of tissues damage under –10, –20 and –30 °C temperatures influence revealed, that the annual shoots of the plants from

Stephanandra Sieb. et Zucc. genera has potential susceptibility to damage by frost. By dint of the differential thermal analyze the features of running of ice-forming processes and ice migration in the different tissues of annual shoots of studied plants confirmed potential susceptibility of *Stephanandra*'s annual shoots to damage by frost. Also was set that the annual shoots of *R. kerrioides* characterized by the property to intensive water losing of phloem tissues which can cause drying winter of their shoots. Peculiarities of histological structure of annual shoots of studied plants were investigated by the fluorescent microscopy method which demonstrated existence of scarce layer of periderm in the *Stephanandra*'s annual shoots and this is the reason of their potential susceptibility to damage by frost.

As a results of conducted analyzes the high level of potential frost resistance was diagnosed for plants from *Exochorda* Lindl., *Photinia* Lindl., *Prinsepia* Royle. genera, and susceptibility to freezing or drying winter shoots was revealed for plants from *Kerria* DC. *Rhodotypus* Sieb. et Zucc., *Stephanandra* Sieb. et Zucc. genera.

Thus, proposed set of methods of potential frost resistance analyzed is convenient to use concerning annual shrubby plants in the framework of their initial introduced approbation.