



Landscape gardening of North Caucasus

Elena Chalaya (1), Nataliya Efimenko (1), Victor Slepykh (2), and Olga Slepykh (3)

(1) (1) FSBI «Pyatigorsk Scientific Research Institute of Resort Study of the Federal Medico-Biological Agency», Pyatigorsk, Russia, (2) (2) Kislovodsk branch of the scientific department of FSBI «Sochi National Park» of the Ministry of Natural Resources and Environment of the Russian Federation, Kislovodsk, Russia, (3) (3) Federal State-Funded Institution of Science "Botanical institute n.a. V. L. Komarov of the Russian Academy of Sciences"

Quercus rubra L. is a red oak, invasive plant from North America. It is very decorative and grows quicker than other species of the oak and is less induced by diseases, transplants easily [1]. It was introduced to mountain resorts of the North Caucasus more than a half century ago.

Forest crop of *Q. rubra* L. in Mashuk forest area (block 2, unit 14) at the age of 48 years old is 27 m high in average which corresponds to I to bonitet. For an example, forest plantations of the local type of *Quercus robur* L. (the age is seventy years old) growing in similar conditions (1) don't exceed quality class – III. Wood deposit of *Q. rubra* L. of the explored site makes 676 m³/ha which exceeds the wood stock of local oak species *Q. robur* L. growing nearby in the same forest site by 1,9 times, and oak groves of vegetative origin by 6,4 times.

Invasive danger of penetration of *Q. rubra* L. in the regional woods is very low because of its high photophily. The illumination of underplant space of natural woods of the region is about 1% of the illumination of the open place because of the high normality and underbrush density which doesn't allow to develop not only to the subgrowth of *Q. rubra* L., but also complicates the development of the subgrowth of local oak species - *Q. robur* L. and *Quercus petraea* L. ex Liebl.

Q. rubra L. raises a balneological interest. Bacteriostatic activity of its leaves in relation to *Staphylococcus aureus* 209p is 28-29% [2]. The coefficient of unipolarity of light ions (KUI) under its canopy corresponds 0,47 which demonstrates its high ionizing ability [3].

Thus, *Quercus rubra* L. is highly perspective for introduction in practice of «green» infrastructure of mountain resorts of the North Caucasus to increase ecological and balneological potential of green space of resort towns.

BIBLIOGRAPHY

1. Forest encyclopedia. : Soviet encyclopedia, 1985. T.1. 563p.
2. Slepykh V.V. Phitontside and ionizing properties of wood vegetation. - Kislovodsk, 2009. 180 p.
3. Povolotskaya N.P. Bioclimatic monitoring and assessment method of climatic-balneological capacity of medical and health-improving areas of the North Caucasus//Condition and protection of the air basin and water and mineral resources of resort and recreational regions. - Kislovodsk. 2000. - P. 231-240.