

Comparison of respiration metabolism in some monumental tree species

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Abstract: Monumental trees having any characteristic of historical, folkloric or mystical constitute a bridge from past to future. It is very important to determine the ecological characteristics of tree species, to examine the changes of chemical components in the leaves, and to reveal the growth physiology of the trees in order to determine the aging mechanisms of trees. In this study was compared respiration metabolism of 9 tree species which are *Abies nordmanniana* Stev. (Fir), *Castanea sativa* Mill. (Sweet chestnut), *Cedrus libani* A. Rich. (Taurus cedar), *Cupressus sempervirens* L. (Italian cypress), *Fagus orientalis* Lipsky. (Oriental beech), *Juglans regia* L. (Walnut), *Pinus nigra* Arnold. (Black pine), *Platanus orientalis* L. (Oriental plane) and *Quercus robur* L. (Peduncle oak), varying ages between 300-500 years, in Kastamonu region. For this purpose leaf samples were collected from the tree classes and were measured glucose, pyruvate which is input material of the Krebs cycle, and free amino acid. According to findings, pyruvate, free amino acid, and glucose is found lowest value respectively Beech, Cypress, and Oak leaves. In spite of that, pyruvate, free amino acid and glucose content are the highest values in Chestnut tree leaves. As a result, it was concluded that the aging physiology of the trees changed with respect tree species, and respiration rate of Beech tree was higher than the other tree species. If comparative studies of photosynthesis and respiration metabolism do in more tree species, more accurate results will provide.

Keywords: Growth physiology, Monumental tress, Respiration