Short communication

PLANTS IN URBAN AREAS AND LANDSCAPE

ADAPTABILITY ASSESSMENT OF NORWAY MAPLE (*ACER PLATANOIDES* L.) ON URBAN ENVIRONMENT OF NITRA

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Abstract

Urban environment impact in the form of the wide range of stress factors on wood growth in the areas close to roads is nowadays the subject of many research works. This article deals with qualitative assessment of crown destruction, assimilation organs efficiency, Chlorophyll content, content of allochtonous elements in leaves and adaptability assessment method of examined specimen of *Acer platanoides* L. growing in environmentally loaded area of Nitra and a comparative environmentally unloaded historical park in the rural settlement Nová Ves nad Žitavou. The results also include a summary of both sites in terms of climate conditions and environmental state of the site at Trieda Andreja Hlinku Street in Nitra for 2015 and 2016. The results of the visual assessment of the crown destruction level and assimilation organs state in 2015 and 2016 showed higher crown and leaf quality in individuals grown in the park area (*Qp*(2015) = 0.44, *Qp*(2016) = 0.43) compared to the individuals in Nitra (*Qp*(2015) = 1.44, *Qp*(2016) = 1.56). Chlorophyll – values fluctuated during all three terms of measurements. All in all, higher values were measured in individuals grown in the park area (*CCI* = 25.914) compared to those in the urban environment (*CCI* = 16.290), what can be evaluated in all three measurement dates in 2016. The performance of assimilation organs was evaluated by statistical comparison of the parameters F_v/F_m and ETR values between the model sites. During the years 2015 and 2016 there were measured higher values in individuals in the park area (F_v/F_m(2015) = 0.828, F_v/F_m(2016) = 0.820) compared to those in Nitra (F_v/F_m(2015) = 0.823, F_v/F_m (2016) = 0.772). Higher ETR values were measured in individuals in the urban area (ETR(2015) = 0.828, ETR(2016) = 0.820) and lower in the park area (ETR(2015) = 0.828, ETR(2016) = 0.820). The assessment of woody adaptability in the city of Nitra showed a slightly reduced adaptability *Ia*(2015) = 1.93, *Ia*(2016) = 2.13) by the adaptability index (*Ia*) of *Acer platanoides* L. specimens compared to the environmentally loaded urban environment. We consider this species as a non-stable and poorly adaptable one to the street alleys in urban spaces.

Keywords: Norway maple adaptability, assessment, chlorophyll-a fluorescence, compared settlements

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