



Dorsiventral leaf reflectance properties of *Carpinus betulus* L.: An indicator of urban habitat quality

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This paper evaluates the effect of urban habitat quality on dorsiventral leaf reflectance asymmetry. Reflectance in the visible bands of a RGB camera has been measured at the adaxial and abaxial sides of *Carpinus betulus* leaves for two contrasting urban habitats, e.g., green suburban (LP) and industrial (P) habitats in the city of Gent (Belgium). Independent of spectral band, abaxial is higher than adaxial leaf reflectance. Secondly at the adaxial leaf side, pollution lowers reflectance especially in the R and G bands. At the abaxial leaf side however, these differences cannot be observed.

Dorsiventral reflectance asymmetry as quantified by the Normalized Dorsiventral Asymmetry Index (NDAI) is higher in industrial habitats (P) as opposed to suburban green ones (LP). This observation indicates a difference in leaf anatomy related to urban habitat quality. Based on our work we suggest that leaf dorsiventral reflectance asymmetry, as measured with a conventional RGB camera is a convenient quantitative indicator for urban habitat quality. Further work is needed to characterize the morphological changes taking place, to investigate species dependency and the impact of the strongest polluted urban habitat types.