

## The Exchanging of Leaf Micromorphological Characters in *Pyracantha coccinea* Depends on Traffic Intensity

Mehmet CETIN<sup>1</sup>, Mansour Mossi Mohammed MOSSI<sup>2</sup>, Elnaji A. AHMAIDA<sup>2</sup>, Hakan SEVIK<sup>3</sup>

<sup>1</sup>Department of Landscape Architecture/Faculty of Engineering and Architecture, Kastamonu University, Turkey

<sup>2</sup>Institute of Science and Technology, Kastamonu University, Turkey

<sup>3</sup>Department of Environmental Engineering, Kastamonu University, Turkey  
mcetin@kastamonu.edu.tr

**Aim of the study:** There are many pollutants that emerge from urban roads due to exhaust gases, car wheels, and vehicles. These pollution sources affect the development of living things in the environment they are in, the accumulation of pollution factors in the living bodies, and some living things cause significant deformations. These accumulations and deformations that occur in the plants are used for the purpose of detecting the pollution coming from the traffic. The use of plants as biomonitor is mainly through determination of the amount of pollutants in the plant. However, pollutants harm plants, organs, tissues and cells. These damages can sometimes be seen, and most of the damage is not visible to the naked eye. In this study, it was aimed to determine the variation of leaf micromorphological properties of *Pyracantha coccinea*, which is used extensively in landscape studies in many parts of Turkey depending on the traffic intensity.

**Material and Methods:** Stoma images of leaf samples collected from the regions where the traffic intensity is at different levels were obtained by electron microscopy. The measurements made on these images were measured Stoma Length (SL), Stoma Width (SW), Stomatal Density (SD), Pore Aperture (PA) and Pore Length (PL). The obtained data were evaluated as statistics and it was attempted to determine how these characters changed according to traffic intensity.

**Results:** As a result of the study, it was determined that the traffic intensity affected all the characters studied at statistical level of 99.9% confidence level. Stoma Length (SL), Stoma Width (SW), Pore Aperture (PA), and Pore Length (PL) were found to be statistically insignificant in areas with low traffic and no traffic. It was determined that these values are higher in areas where traffic is heavy. The highest values for Stomatal Density (SD) were obtained in areas where the traffic was less density.

**Acknowledgements:** All authors work equally.

**Keywords:** *Pyracantha coccinea*, leaf, micromorphological characters, traffic, stoma.