The positive effect of black locust plantations in the mitigation of atmospheric pollution

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Abstract
The focus in nature based solutions, aiming at the improvement of the air quality has led the scientific community to turn to forests and tree planting. The retention of PM10 particles by forest ecosystems plays a significant role towards this end and it is being implemented by many countries worldwide. Within the COFORMIT project, this study aims at assessing the contribution of *Robinia pseudoacacia* L. plantations, established at restored sites of the Lignite Centre of Western Macedonia, in retaining PM10 particles. Data were gathered for six months (4^{th}-10^{th} /2020), through a network of 9 stations that measured air quality and climatic parameters. At the same time, leaf samples were sampled at three different forest stands. In every stand, sampling was performed along two transects (25m long), each consisting of five trees, at different positions of the tree crown. Our preliminary results suggest that black locust stands have the ability to retain dust in their foliage. Rates of PM10 retention are related to prevailing weather conditions and to the intensity of PM10 release by the energy plant.

Keywords: *COFORMIT; air pollution; PM10; tree plantations; surface mining*