

# PRELIMINARY TESTS TO EVALUATE THE PERFORMANCE OF A BOTANICAL BIOFILTER IN REMOVING INDOOR AIR POLLUTANTS

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Ensuring good indoor air quality (IAQ) is of the utmost importance given that people spend most of their time (about 80%) in indoor spaces<sup>1</sup>. In this study, an active botanical biofilter for indoor applications was tested in combination with two different types of plants (*Chlorophytum comosum* and *Epipremnum aureum*) for the removal of particulate matter (PM) and volatile organic compounds (VOCs). Preliminary analyses were conducted on a single module inside a chamber especially designed for experimental testing (Fig. 1). Lavander oil and denatured alcohol were chosen as the sources of VOCs, whereas paper was selected as the source of PM. Known quantities of air pollutants were generated with a burner operating at high temperatures, and the concentrations trends were monitored using appropriate sensors: an optical particle counter (P-Dust Monit, conTec Engineering s.r.l.) for PM, and a total VOC analyzer (NETPID, Lab Service Analytica s.r.l.) for VOCs. Removal and filtration efficiencies were calculated from the decay curves of each experimental test. Preliminary investigations showed promising results in the removal of both PM and VOCs, with filtration efficiencies greater than 90%.



Figure 1: Top view of the chamber with the biofilter module, the heater and the NETPID sensor.

## References:

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