



**“Gheorghe Asachi” Technical University of Iasi, Romania**



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## **EXPERIMENTAL STUDY ON CO<sub>2</sub> CAPTURE IN A RESIDENTIAL SPACE**

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### **Abstract**

The influence of *Spathiphyllum* “Sweet Silvio” flowers on indoor air quality (IAQ) and energy savings were studied experimentally in a bedroom, part of a 65 m<sup>2</sup> three-room apartment, in Brașov, Romania. We used four 14 cm pots of *Spathiphyllum* “Sweet Silvio” with a total leaf surface of 134.29 cm<sup>2</sup>. The residential space has a low number of air exchange rates because exterior walls are insulated with 5 cm polystyrene, and windows have high-energy efficiency glass in PVC casement. To evaluate indoor air quality, CO<sub>2</sub> levels were considered as the main indicator and relative humidity (RH) as second indicator. Measurements were carried out in a three-week period plus one day in the week four, both during the day and at night. In the same period for one week, we measured also CO<sub>2</sub> concentration in the outside air and results show an average value of 408 ppm. The study was divided into four cases, each with a specific scenario. The results indicate a beneficial effect brought by the flower's presence inside the bedroom, but only if the door is open both day and night, to maximize the number of air exchange rates.

*Key words:* indoor air quality, CO<sub>2</sub> capture, active bio filtration, residential space

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