

## Technology for Improvement of Indoor Air Quality: Removal of Allethrin, by local House Plant *Polyscia fruticosa* (L.) Harms

Seemaa Ghate\*

Host Institute: Know How Foundation, Bavdhan, Pune-21, MS, India

\*Corresponding author: Seemaa Ghate, 14/A, Chinmay, First Floor, Manmohan Society, Lane 2, Karvenagar, Pune-411 052, MS, India, E-mail: drseemaaghat@gmail.com

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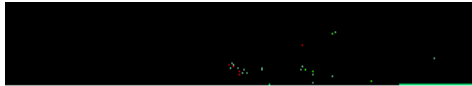
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### Abstract

Technology for improvement of indoor air quality by removal of allethrin, a poisonous pesticide using *Polyscia fruticosa*, a local house plant effectively, is researched upon in this study. Allethrin is released from burning of mosquito coil as harmful toxic fumes. Mostly Indoor Air quality (IAQ) suffers, due to lack of ventilation. Well grown *Polyscia fruticosa* plants were established in potting media having composition of vermicompost, enricher, consortium of *Sphingomonas* and activated charcoal for enhancing phytoremediation. After favourable growth of plants & bacterial translocation to various plants parts like roots, stem, leaves etc plants were exposed to burning mosquito coil toxic smoke gases & were monitored for physically visible symptoms anomalies, pollution Indication Index (PII) and Gas Chromatography-Mass Spectrometry (GC-MS). All tested plants showed no physical injury symptoms, PII in most of the cases was 0. Post mosquito coil smoke exposure GCMS analysis showed high levels of allethrins, up to 3.40-13.57 µg/g. When GCMS analysis of experimental plant was done after 20 days, it was observed that levels of allethrin reduced to 0. This may suggest that allethrins are metabolized by *Polyscia* with the help of *Sphingomonas*. This evidence shows that indoor potted plants with standardized size of pot and soil mixtures can be used to mitigate indoor organic air pollution. This low-cost, portable, green technology can be successfully used in close spaces and can meet with social, economic and environmental needs.

### Keywords:

defined T e  
fve  
of ces T ese  
T e  
f bers  
f uids, Diferent  
f oor  
T e  
T ese



Level of pollution	High	Low
HCHO	0.887 mg/m <sup>3</sup>	0.019
TVOC	9.999 mg/m <sup>3</sup>	0.173
PM 2.5	999 µg/m <sup>3</sup>	023
PM 10	999 µg/m <sup>3</sup>	025

first

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T us,

effect  
scientific

T e

different

effective

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