

# INVESTIGATIONS ON *CHLOROPHYTUM COMOSUM* ABILITY TO REMOVE TOLUENE FROM AIR IN A CLOSED ENVIRONMENT

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Volatile Organic Compounds (VOCs) are common pollutants found in closed environments.

109 VOCs were identified in the atmosphere of Skylab 3.

Plants may contribute to absorb toxic compounds and to detoxify them.

## OBJECTIVES

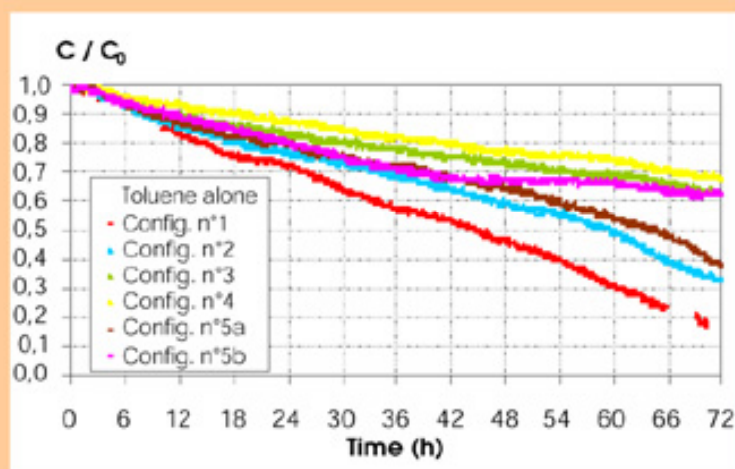
- Assess plants ability to remove VOCs
- Identify the main parts responsible for the degradation

## EXPERIMENTAL

- Closed experimental chamber of 1 m<sup>3</sup> equipped with a fan
- 72 h - experiments
- Plant : *Chlorophytum comosum*
- Toluene initial concentration : 11.5 mg.m<sup>-3</sup>
- Relative humidity : 60 %
- Light intensity : 300 lux
- Soil composition : blond peat (35%), dark peat (20%), coconut fibres (25%) and coconut specks (20%)
- Conditions :
  - configuration 1 → leaves + soil + roots + microorganisms
  - configuration 2 → soil + roots + microorganisms
  - configuration 3 → leaves + roots (in water)
  - configuration 4 → leaves alone (in water)
  - configuration 5a → soil + microorganisms
  - configuration 5b → sterilized soil



## RESULTS



Configuration	Toluene removal (%)
1	50
2	36
3	6
4	unsignificant
5a	30
5b	6

*Chlorophytum comosum* is able to remove toluene from air in closed environments.

Both soil and microorganisms play an important role in toluene removal : it is supposed that toluene is adsorbed on soil and then degraded by microorganisms.

Further experiments will be done on *Dracaena marginata* and *Scindapsus aureus* with carbon monoxide and formaldehyde

Acknowledgements to Plant'Airpur Association (especially P. Chagvardieff, G. Chaudet and J.-P. Derouet) for plants supplying and to ADEME and Regional Council of Pays de Loire for financial support