Method to reduce VOC (volatile organic compounds) concentration in air

KEYWORDS

Pseudomonas putida
Volatile organic compounds
Sol-gel matrix
Materials coating

PATENT

Title: Bioactive coating for indoor air quality improvement

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LICENSING

Exclusive, non-exclusive licences and research collaborations

INVENTORS

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PROBLEM

Indoor air pollution of residential units and workplaces is a major concern of nowadays. Toxic pollutants such as formaldehyde, which may have carcinogenic effects in health, are constantly released from distinct construction and decoration materials and/or household's products.

The development of bioactive coatings incorporating biomolecules able to capture and degrade these toxic compounds is of major interest. However, the conservation of their bioactivity is crucial throughout time.

SOLUTION

The invention relates to a method to reduce VOC (volatile organic compounds) concentration in air in contact with a surface coated with a sol gel matrix comprising encapsulated microorganism of Pseudomonas putida and to the use of encapsulated microorganism of Pseudomonas putida in a sol-gel matrix to reduce the concentration of VOCs in air. The main steps of the method are :

- Providing a surface
- Encapsulation of whole microorganism of Pseudomonas putida in a sol-gel matrix
- Application of the obtained sol-gel matrix to the surface by a coating method to form a coated surface
- Exposing the air to the coated surface.

INNOVATION

- Degradation of formaldehyde into non-toxic or less polluting compounds
- Incorporation and encapsulation of whole microorganism (no extraction/purification of the enzyme)

TECHNOLOGY STATUS

TRL 6 : Pilot testing of prototype component or process / of integrated system

MARKETS

- **Buildings and construction (construction materials, furnitures, paints/varnishes, …)**
- **Air ventilation**
- **Automotive sector**
- **Textiles and clothing**
- **Cosmetics**
- **Aircraft industry**

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