UNIVERSIDAD DE CHILE

Method for the absorption and degradation of dyes from textile effluents

University of Chile has generated a new method for preparation of lamellar organic- inorganic composites of zinc hydroxide that allows the absorption and degradation of dyes from textile effluents.

THE CHALLENGE

Nowadays environmental problems related to hazardous waste and toxic pollutants in water have attracted wide attention. The disposal of dyes from industries as textile industries is particularly important to public health and the availability of water resources.

This new technology allows the degradation of methylene blue among other dyes present in industrial aqueous wastes, mainly those from the textile industry.

THE TECHNOLOGY

The present invention relates to a method for generating new zinc hydroxide-based materials, which enables the elimination and degradation of methylene blue among other dyes and other organic compounds from wastewater of industrial effluents, in particular those from textile industry.

The elimination of dyes or organic substances involves two independent processes that are executed sequentially:

(i) Adsorption of dyes or organic substances in the nanocompound in an aqueous medium.

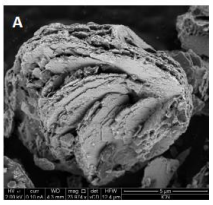
(ii) Degradation of dyes or organic substances absorbed by heterogonous photocatalysis.

STAGE OF DEVELOPMENT

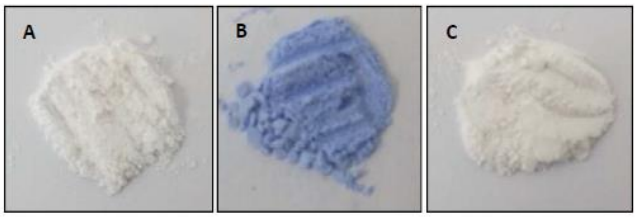
- ***Laboratory tests performed.***

COMPETITIVE ADVANTAGES

- Use of healthy-friendly, environmentally benign, abundant and low-cost precursors.
- Photocatalyst can be reused several times after the photo degradation process of the absorbed species.
- Can be used to absorb/degrade other organic molecules of environmental interest, which are chemically active such as drugs, antibiotics, pesticides, among others.



SEM Image



Images of a hydroxide nanocompound. (A) Without dye addition, (B) After the dark stirring process and (C) recovery of the compound after irradiation with UV light.

APPLICATIONS

- Removal of dyes from textile effluents.
- Removal of organic molecules of interest in industries such as environmental, health, among others.

OPPORTUNITY

University of Chile is searching for industry partners for **Out-licensing** and/or **collaborating/contract research**.

INTELLECTUAL PROPERTY

- Patent application PCT/IB/2018/060510.

VID INVESTIGACIÓN INNOVACIÓN CREACIÓN ARTÍSTICA
Vicerrectoría de Investigación y Desarrollo
UNIVERSIDAD DE CHILE

CONTACT: **Karen Hevia**
Tech Transfer Manager, Chemistry & Chemical processes.
Karen.hevia@uchile.cl
+56 (2) 29780005