

Post-doctoral position February 2020 – January 2021

Deadline: December 20th 2019

Subject : *Screening of encapsulation ability of dextrans / Application to active pharmaceutical ingredients and gaseous pollutants.*

The Unit of Environmental Chemistry and Interactions with Living Organisms (UCEiV) offers a 12-month postdoctoral position, within a public-private partnership (ScreEnDex project), funded by the innovative technological platform IRENE. The project aims at contributing to green chemistry and bioresources valorization, by searching new applications for starch based products, namely maltodextrins and cyclodextrins. This study will explore the encapsulations properties of such dextrans in aqueous solutions, with two kinds of organic molecules (*Active Pharmaceutical Ingredients API, Volatile Organic Compounds VOC*).

Missions :

The mission of the appointed candidate will be to characterize the molecular interactions taking place between various hosts (cyclodextrins, maltodextrins) and guests (API, VOC), defined with our industrial partner, within the scope of the ScreEnDex project.

The candidate will have to evaluate the increase of solubility of guest molecules induced by complexation, by determining the stability (formation constants) of the inclusion compounds thus formed. Such studies will be realized by means of various analytical techniques (UV-Visible and fluorescence spectroscopy, NMR ¹H and DOSY, Headspace-GC, isothermal titration calorimetry) and of various experimental protocols (titration, competition, phase solubility, Job Plot). The structural characterization of inclusion by NMR ROESY will also be investigated.

This studies will take place not only with simplified solutions (one host, one guest) but also with more complex solutions (mixture of numerous hosts and/or numerous guests).

Candidates profile:

The successful candidate should have a strong experience (thesis or post-doc) in analytical chemistry or physical chemistry. Knowledge in the molecular interactions field and in modelling physicochemical phenomena will be an asset. The candidate must be able to work in a team and in collaboration with other partners. A good English level is required.

1st selection stage : CV and letter of motivation

2nd selection stage : interview

Contact :

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