

International Master 2 Atmospheric Sciences: Research Training 2022-2023

Laboratory: LASIRE

Supervisor: VISEZ Nicolas

E-mail : nicolas.visez@univ-lille.fr

Collaborators: Klervi Vandenbossche, Marie Choël

Eventually CaPPA Work Package: WP2

Contamination of Allergenic Pollen Grains by Air Pollution

The allergenic pollen grain is altered by air pollution. These alterations can have an effect on plant reproduction, on allergic sensitization (the process of becoming allergic) and also on the severity of respiratory symptoms of allergy.

The pollen grain is protected by a thin film of lipidic compounds (pollen coat). This lipidic fraction can be modified by two mechanisms by air pollutants: on the one hand, by reactivity with oxidants of the atmosphere (mainly ozone); and on the other hand, by direct adsorption of lipophilic organic pollutants.

This laboratory internship focuses on the study of the alteration of the lipid fraction of allergenic pollen grains by chromatography coupled to tandem mass spectrometry (GC-MS/MS). The pollen grains will be collected in the Lille metropolitan area in order to characterize the influence of urban pollution on the pollen lipidic fraction. The pollen will also be artificially treated in the laboratory with ozone in order to study specifically the reactivity with this pollutant.

Last publications of the team on this issue:

<https://doi.org/10.1016/j.molimm.2021.05.014>

<https://doi.org/10.1007/s11356-021-12940-8>

<https://doi.org/10.1007/s10453-020-09660-w>

<https://doi.org/10.1016/j.envpol.2018.07.025>

Key words: *Pollen Allergy, Analytical Chemistry, Persistent Organic Pollutants, ozone*