29. Air Pollution Biomonitoring with Bees of Guadeloupe: Experiments and first outcomes

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The air quality is one of the biggest problematic of these last decades, due to increase of air pollution in the world. Pollutants are usually generated from human activities or natural sources. For a long time, air quality evaluation was based on punctual and automatic measurements of pollutants, which provide local physical and chemical data without considering the global impact on biota. Nowadays, numerous new tools are applicable for air quality evaluation. In this context, biomonitoring methods have received increasing interest while providing very promising results. This is especially relevant for the most part, as they present simple implementations and low cost. Indeed, this represents a new way to perform air pollution evaluation.

In this study, bees are used as sampling tool because they fly within a large area of 3 km of radius during the nectar and pollen collection. Their body is covered of hairs, which makes them particularly suitable to keep many substances when these latter come into contact. They are thus very sensitive to environmental pollutants.

Bees of Guadeloupe have been used to detect the presence of PAHs, PCBs, metal pollutants PM10, PM2.5, which is typically found in atmospheric compartment. Several analytical techniques were used such as Fluorescence detection by X and the X-ray scanning electron microscope for the identification of heavy metals. Gas chromatography / mass spectrometry (GC / MS) was used to analyze the PCBs. We will present the difficulties encountered during the use of the different analytical processes and the first results obtained.