The terrestrial red mud deposits in Provence: Ongoing researches in soil science

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Framework

These researches fit into the works coordinated by the Observatoire Hommes-Milieux (OHM) of Bassin Minier de Provence (BMP) and dedicated to vegetal covers and microbial communities of soils. They aim to study the terrestrial deposits of red muds resulting from past and current activities of alumina extraction.

Research objectives

How these industrial activities interact with terrestrial ecosystems through the soil-plant continuum?

The researches undertaken aim:

- To study the effects of red mud inputs to soils on their physico-chemical and biological qualities.
- To test their harmfulness on the biological functions of soils.
- To determine how and to what extent these tailings modulate the structuring of vegetal and edaphic microbial communities through reciprocal functional relationships.

Research steps

- Task 1 – Overall characterization of red mud deposits at the regional scale
  > Biogeochemical analyses.
  > Deposit typology of various sites.
  > Spatialization.
  > Ecotoxicological diagnostics.

- Task 2 – Effects of red mud deposits on soils: field, multi-scale and experimental approaches
  > Structure and diversity of plant communities.
  > Dynamic of soil microbial communities.
  > Functional interactions: aboveground-belowground linkages.

Expected results

- Acquisition of fundamental data.
- Ecotoxicological diagnostics.
- To consider utilization solutions of past deposits.
- To recommend management actions of forthcoming deposits.

Study sites

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