

Supplementary information

Table 2. Experimental design and measurements techniques description

Clay sample, mg	Medium 10ml	Gas phase, 10 ml	Temperature, °C	pH	Incubation time, days	Measurements
Availability of biophilic elements study						
10000	Distilled water 0,1M HCl	Air	20	Individual per sample	30	Elements in solution by ICP-MS
Clays microbial complex activity study (cultivation) *						
1000	low-salt medium, mg/l NaHCO ₃ - 272.0 mg/l CaCl ₂ - 71.8 mg/l MgSO ₄ · 7H ₂ O - 70.0 mg/l CH ₃ COONa – 1000 mg/l Glucose - 1000 mg/l	Air (for oxic condition), Argon (for anoxic condition)	20	7.0-7.5	15	Microbial respiration (MTT), Elements in solution by ICP-MS (biological leaching)
Microbial stimulation by additives *						
1000	NaHCO ₃ - 272.0 mg/l CaCl ₂ - 71.8 mg/l MgSO ₄ · 7H ₂ O - 70.0 mg/l Additives: 1) CH ₃ COONa, 1000 mg/l 2) KH ₂ PO ₄ , 500 mg/l 3) Na ₂ SO ₄ , 500 mg/l 4) H ₂ 5) CO ₂	Argon Argon Argon H ₂ CO ₂	20	7.0-7.5	30	Microbial respiration (MTT), H ₂ S formation (acetate and hydrogen experiments)

1. *In the control clay samples were treated by UV light and organic wasn't added
- 2.