Table 1 Soil texture and organic carbon contents distribution in the two studied profiles

Soil Sample		Clay g/100g (< 2 µm)	Fine silt g/100g (2 µm - 20 µm)	Coarse silt g/100g (20 µm - 50 µm)	Fine sand g/100g (50 µm - 0,2 mm)	Coarse sand g/100g (0,2 mm - 2 mm)	Carbon g/100g
O	50-60 cm	75.9	5.3	1.6	3.5	13.5	2.1
	70-80 cm	69.1	8.7	2.1	3.6	16.4	1.1
	90-100 cm	61.1	12.4	2.5	4.6	19.2	0.7
H	50-60 cm	32.2	28.1	19.0	9.8	10.8	0.32
	70-80 cm	27.9	21.5	12.9	7.8	29.6	0.31
	90-100 cm	31.9	33.1	13.4	6.4	15.0	0.2

Table 2 Total, ascorbate extracted and CBD-extracted Fe and Hg in soils O and H at 50-60, 70-80 and 90-100 cm depth. Extraction intervals represent ± mean standard error calculated for each determination.

Soil samples	Depth cm	Fe_T mg g $soil^{-1}$	Hg_T ng g $soil^{-1}$	Fe_{asc}/Fe_T %	Hg_{asc}/Hg_T %	Fe_{Dit}/Fe_T %	Hg_{Dit}/Hg_T %
O	50-60	198.1	294.1	6.9 ± 0.3	19.8 ± 0.2	70.1 ± 5	40.0 ± 2.1
	70-80	263.1	265.9	2.7 ± 0.4	13.07 ± 0.97	77.3 ± 5.7	47.9 ± 5.6
	90-100	290.6	248.7	1.7 ± 0.5	8.52 ± 0.62	66.9 ± 4.5	38.8 ± 7.1
H	50-60	13.4	135.6	4.5 ± 0.2	/	80.6 ± 7.4	3.0 ± 0.13
	70-80	20.7	133.9	14.4 ± 0.7	/	46.7 ± 4.6	8.9 ± 1.7
	90-100	8.4	338.6	4.7 ± 0.6	/	122.6 ± 9.5	1.6 ± 0.1

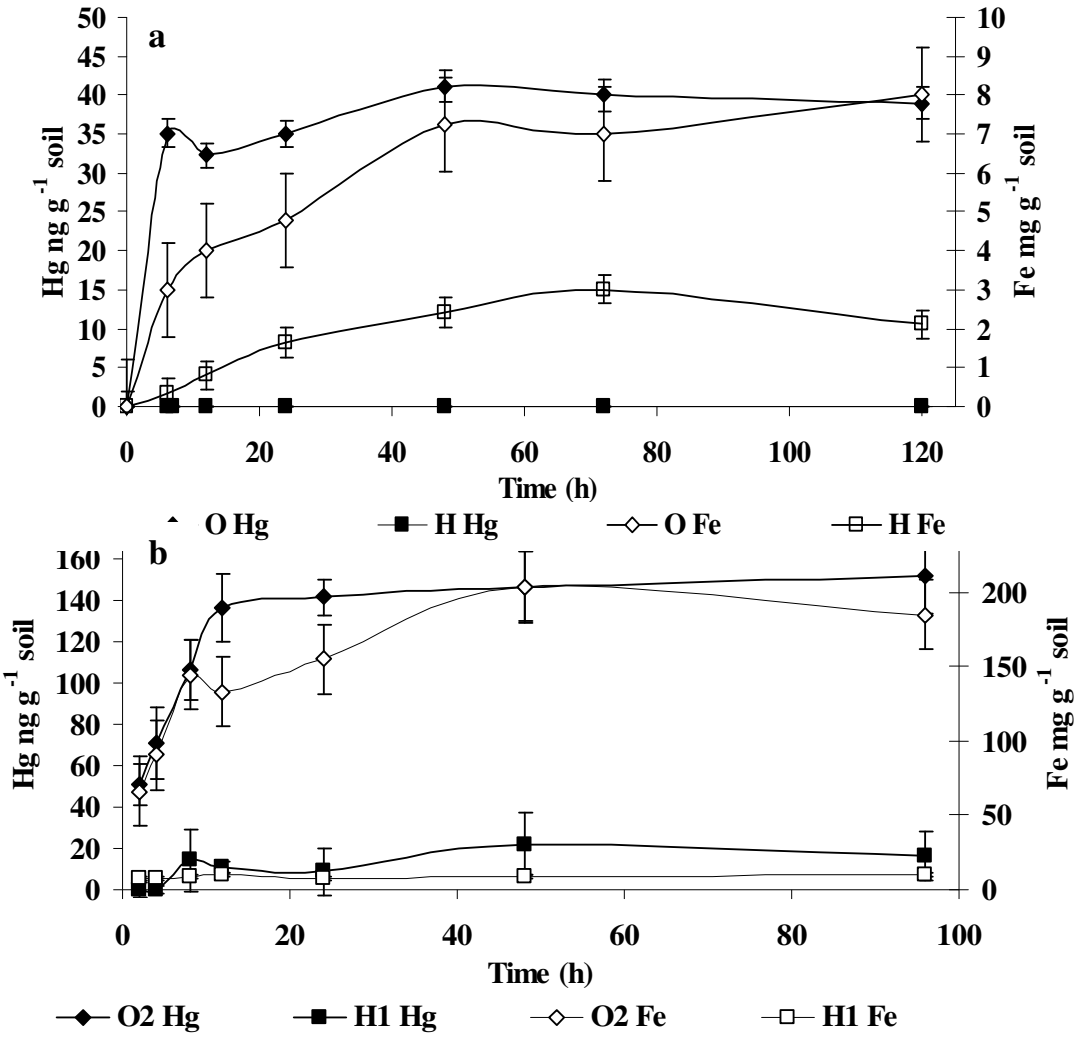

Fig. 1 Hg and Fe solubilised by chemical reduction over time in 70-80 cm horizon of the oxisol (O) and the hydromorphic soil (H). a: Hg_{Asc} (ng g^{-1} soil) and Fe_{Asc} (mg g^{-1} soil); b: Hg_{CBD} (ng g^{-1} soil) and Fe_{CBD} (mg g^{-1} soil). Intervals represent +/- mean standard error calculated for each determination (3 replicates).

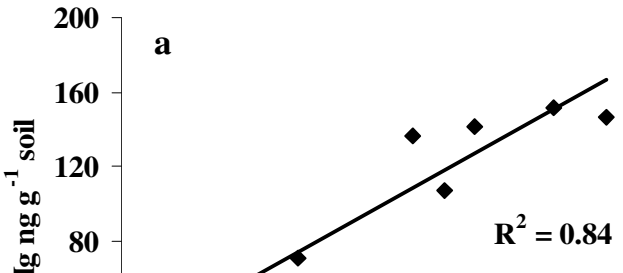

Fig. 2 Linear regressions between Fe and Hg leached during chemical extraction in the O soil, a) by dithionite and b) by ascorbate.

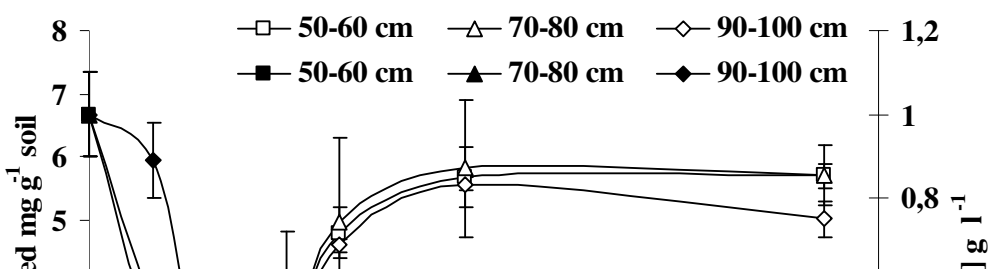

Fig. 3 CO_2 evolution and glucose consumption in the oxisol microcosms at the three studied depths (50-60, 70-80 and 90-100 cm) during the incubations, in mg C g^{-1} soil and g l^{-1}, respectively. Intervals represent +/- mean standard error calculated for each determination (3 replicates).

Fig. 4 Iron solubilisation over time in the three studied depths of the oxisol (O) in mg g^{-1} soil. Intervals represent +/- mean standard error calculated for each determination (3 replicates).

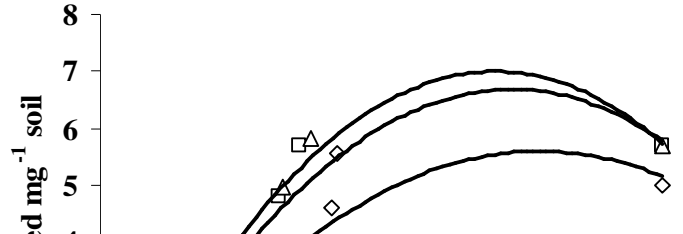

Fig. 5 Correlations between mineralised carbon and iron solubilisation in microbial incubations.

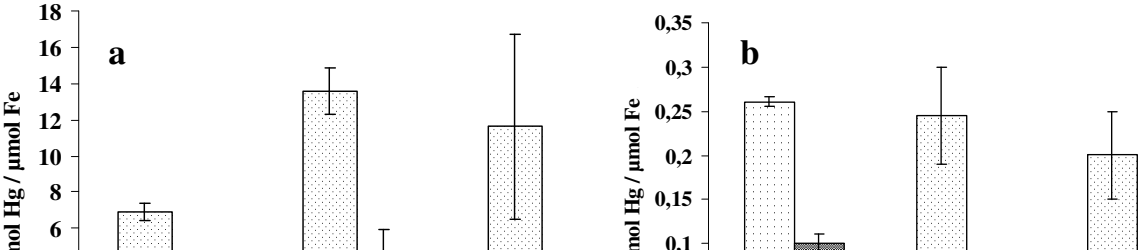

Fig. 6 Quantity of mercury (nmol) extracted per µmol of extracted Fe_{Asc} (a) and Fe_{CBD} (b), before incubation, T0, and after 14 days incubation; T14. T0:⊡ ; T14:▩. Intervals represent +/- mean standard error calculated for each determination (3 replicates).