

Table 1 DRX semi-quantitative estimation of the mineralogy of the studied sites

Site	Mineral	Chemical Formula	SemiQuant (%)
BI	Montmorillonite	$\text{Ca}_{0.2}(\text{Al, Mg})_2\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot 4\text{H}_2\text{O}$	84
	Plagioclase (Albite)	$(\text{Na}_{0.75}\text{Ca}_{0.25})(\text{Al}_{1.26}\text{Si}_{2.74}\text{O}_8)$	12
	Quartz	SiO_2	3
BII	Montmorillonite	$(\text{Na, Ca})_{0.3}(\text{Al, Mg})_2\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot n\text{H}_2\text{O}$	71
	K-feldspar (sanidine)	$\text{K}(\text{AlSi}_3\text{O}_8)$	18
	Quartz	SiO_2	10
	Jarosite	$\text{K}(\text{Fe}_3(\text{SO}_4)_2(\text{OH})_6)$	1
BIV	Montmorillonite	$\text{Ca}_{0.2}(\text{Al, Mg})_2\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot 4\text{H}_2\text{O}$	96
	Plagioclase (Albite)	$\text{Na}(\text{AlSi}_3\text{O}_8)$	3
	Quartz	SiO_2	1

Table 2 Chemical composition, determined by XRF, of the samples studied

Element (ppm)	SiO₂	Al₂O₃	TiO₂	Fe₂O₃	MnO	MgO	CaO	Na₂O	K₂O	P₂O₅	LOI	TOTAL
BI-2	61.07	17.20	0.24	5.22	0.03	4.15	2.43	1.22	1.55	0.07	6.48	99.65
BI-3	69.81	15.43	0.20	2.36	0.02	2.54	2.06	2.08	1.24	0.04	3.91	99.69
BII-2	54.64	14.50	0.55	11.26	0.01	1.58	0.59	0.48	6.59	0.36	8.91	99.47
BIV-2	61.90	17.79	0.25	2.33	0.11	4.90	2.13	0.88	0.75	0.05	8.49	99.57
BIV-3	58.85	20.55	0.24	2.69	0.14	5.41	1.67	0.34	0.24	0.05	9.18	99.36

Table 3 Determination of the percentage of total organic carbon (TOC) and pH of the samples studied

Sample	% OC	pH
BI-2	0.12 ± 0.02	9.03
BI-3	0.03 ± 0.01	9.16
BII-2	0.04 ± 0.00	7.82
BIV-2	0.04 ± 0.00	8.03
BIV-3	0.06 ± 0.00	8.32

Standard deviation is included as ±SD

Table 4 Ecological biodiversity indices of bentonite samples communities. The indices presented are: Species richness (S), Shannon index (H'), Simpson index (λ), Inverse Simpson index ($1/\lambda$), Unbias Simpson index (Unbias Simp), Fisher Alpha index (α) and Pielou's evenness (J')

Sample	S	H'	λ	$1/\lambda$	Unbias Simp	α	J'
BI-2	119	3.96	0.96	28.24	0.96	17.74	0.83
BI-3	122	3.96	0.97	30.44	0.97	18.60	0.82
BII-2	46	2.00	0.74	3.86	0.74	5.64	0.52
BIV-2	108	3.66	0.96	25.90	0.96	15.00	0.78
BIV-3	111	2.87	0.84	6.29	0.84	14.92	0.60