

SUPPLEMENTARY MATERIALS

Chemical characteristics of the studied pedons

Profile	Depth	pH		ΔpH	Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	SB ^a	Al ³⁺	H+Al ^b	ECEC	CEC	V	m	OC	P _a	P _t	P ^a
		H ₂ O	KCl																
	cm	cmol.c.kg ⁻¹										-----%-----	% ¹	mg.kg ⁻¹	%				
P01-Pantoterric Anthrosols (Pantohypereutric, Pantoloamic, Pantoescalic)/3192 m.s.l.m																			
Ap	0 - 30	6.39	5.66	-0.73	12.79	2.16	0.97	0.06	15.99	0.00	2.10	15.99	18.09	88.40	0.00	2.20	34.30	586.11	40.00
2Bb	30 - 90	7.13	6.60	-0.53	15.48	1.79	0.72	0.16	18.14	0.00	0.20	18.14	18.34	98.90	0.00	1.29	97.80	281.15	42.00
P02-Pantoterric Anthrosols (Pantohypereutric, Pantoloamic)/3577 m.s.l.m																			
Ap	0 - 20	7.41	6.59	-0.82	14.73	0.43	0.15	0.06	15.37	0.00	0.50	15.37	15.87	96.80	0.00	2.65	102.00	768.00	40.33
2Ab	20 - 40	7.24	6.49	-0.75	16.50	0.32	0.10	0.05	16.97	0.00	0.30	16.97	17.27	98.30	0.00	1.91	66.80	632.30	42.33
3ACb	40 - 90	7.70	6.46	-1.24	17.82	0.49	0.07	0.04	18.43	0.00	0.20	18.43	18.63	98.90	0.00	1.10	22.50	417.99	53.50
3CA	90 - 140	7.89	6.85	-1.04	19.45	0.65	0.05	0.06	20.21	0.00	0.00	20.21	20.21	100.00	0.00	1.10	18.30	312.00	62.00
Cr	140 - 200	7.87	6.94	-0.93	19.22	0.59	0.05	0.05	19.91	0.00	0.00	19.91	19.91	100.00	0.00	1.10	20.40	-	60.00
P03-Pantopetric Anthrosols (Pantohypereutric, Pantoloamic)/3741 m.s.l.m																			
Ap	0 - 30	6.96	6.04	-0.92	23.02	1.82	0.45	0.23	25.52	0.00	1.60	25.52	27.12	94.10	0.00	2.94	1631.40	2415.82	52.83
2Ab	30 - 60	6.99	6.07	-0.92	22.88	1.72	0.18	0.23	25.03	0.00	1.60	25.03	26.63	94.00	0.00	2.58	1717.60	2611.61	48.83
3Ab	60 - 100	7.33	6.50	-0.83	28.75	1.58	0.39	0.37	31.09	0.00	0.30	31.09	31.39	99.00	0.00	2.58	1503.90	5412.76	49.00
4C	100 - 120	7.58	6.57	-1.01	24.53	1.46	0.72	0.52	27.23	0.00	0.20	27.23	27.43	99.30	0.00	2.20	978.30	6724.59	44.00
5Ab	120 - 140	7.68	6.69	-0.99	25.43	1.66	0.72	0.32	28.13	0.00	0.20	28.13	28.33	99.30	0.00	3.31	1380.50	4860.77	52.50
P04-Pantoterric Endopetrocalcic Kastanozems (Pantoloamic, Endodensic)/3748 m.s.l.m																			
Ap	0 - 5	6.33	5.02	-1.31	9.42	1.13	0.13	0.10	10.78	0.00	4.20	10.78	14.98	72.00	0.00	1.98	8.70	638.58	64.50
2Ap	5 - 30	6.34	4.59	-1.75	8.75	0.98	0.08	0.06	9.87	0.00	4.50	9.87	14.37	68.70	0.00	1.18	2.70	420.10	68.83
3C	30 - 35	6.16	4.81	-1.35	13.10	1.11	0.06	0.09	14.36	0.00	1.80	14.36	16.16	88.90	0.00	0.52	5.00	509.27	68.33
4Ab	35 - 70	6.46	4.97	-1.49	11.77	0.68	0.08	0.08	12.61	0.00	2.40	12.61	15.01	84.00	0.00	0.59	4.00	667.88	75.33
Cr	70 - 130	8.03	8.19	0.16	2.35	0.03	0.01	0.07	2.45	0.00	0.00	2.45	2.45	100.00	0.00	0.22	0.70	-	74.50
P05--“Anthropic” Pantoeutric Regosol (Pantoloamic)/3781 m.s.l.m																			
Op	0 - 20	6.19	5.56	-0.63	11.05	2.76	0.56	0.12	14.50	0.00	4.00	14.50	18.50	78.40	0.00	9.56	118.10	409.43	24.50
A2	20 - 50	6.46	5.49	-0.97	6.38	1.89	0.82	0.07	9.16	0.00	2.40	9.16	11.56	79.20	0.00	2.58	114.10	663.24	36.17
Ab	50 - 60	6.49	5.29	-1.20	5.19	1.51	0.72	0.05	7.47	0.00	1.90	7.47	9.37	79.70	0.00	0.96	109.30	566.59	41.00

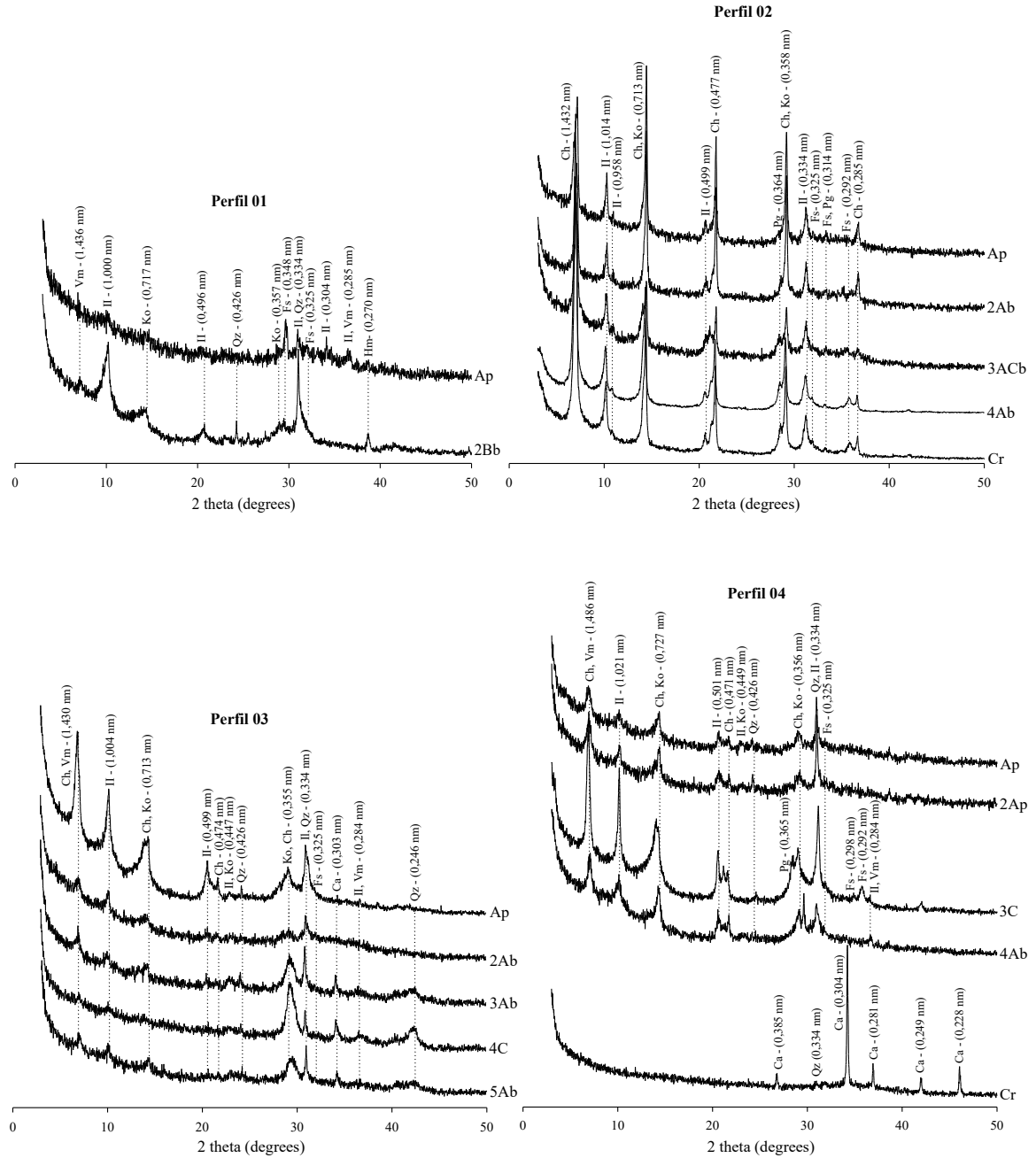
C	60 - 100	6.35	4.94	-1.41	5.09	1.49	0.67	0.06	7.31	0.00	2.60	7.31	9.91	73.80	0.00	1.03	104.30	-	39.00
<i>continue...</i>																			
Perfil	Depth	pH		Δ pH	Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	SB ^a	Al ³⁺	H+Al ^b	ECEC	CEC	V	m	OC	P _a	P _t	P ^a
		H ₂ O	KCl																
	cm																		
									cmol _c .kg ⁻¹					-----%-----		g.kg	mg.kg ⁻¹		%
P06-Pantoterric Anthrosols (Pantohypereutric, Pantoloamic)/3835 m.s.l.m																			
Ap	0 - 20	5.97	5.10	-0.87	10.64	2.48	0.21	0.10	13.42	0.00	3.70	13.42	17.12	78.40	0.00	2.94	22.10	744.01	46.50
2BA	20 - 55	6.07	4.90	-1.17	11.52	2.48	0.09	0.08	14.17	0.00	3.20	14.17	17.37	81.60	0.00	1.65	30.50	346.52	49.00
3Ab	55 - 100	6.50	5.23	-1.27	12.12	2.50	0.06	0.10	14.78	0.00	2.20	14.78	16.98	87.00	0.00	1.65	11.80	442.80	55.83
4Ab	100 - 150	6.79	5.45	-1.34	13.56	2.42	0.07	0.10	16.14	0.00	1.90	16.14	18.04	89.50	0.00	1.29	21.70	294.34	59.00
5Ab	150 - 250	6.96	5.73	-1.23	20.07	2.80	0.07	0.07	23.01	0.00	1.60	23.01	24.61	93.50	0.00	1.65	16.90	499.28	61.83
P07-Pantoterric Anthrosols (Eutric, Pantoclayic, Pantoveritic)/3729 m.s.l.m																			
Ap	0 - 25	6.20	5.88	-0.32	15.25	2.12	0.17	0.29	17.83	0.00	2.90	17.83	20.73	86.00	0.00	3.13	5.30	445.49	60.67
2Av	25 - 60	5.55	4.67	-0.88	18.86	1.57	0.06	0.20	20.69	0.00	7.40	20.69	28.09	73.70	0.00	4.41	2.10	206.44	63.50
3Av	60 - 82	4.65	3.78	-0.87	12.76	1.63	0.05	0.16	14.60	0.00	9.00	14.60	23.60	61.90	0.00	3.86	2.20	109.26	60.17
4Av	82 - 110	4.16	3.83	-0.33	24.63	2.85	0.08	0.13	27.69	0.29	17.20	27.98	44.89	61.70	1.00	6.98	2.80	430.17	84.33
5Abv	110 - 170	5.72	5.32	-0.40	27.26	3.43	0.16	0.11	30.96	0.00	3.50	30.96	34.46	89.80	0.00	4.04	2.00	138.27	68.17
P08-Pantoterric Anthrosols (Pantohypereutric, Pantoloamic, Pantoesclalic)/3772 m.s.l.m																			
Ap	0 - 30	7.78	7.38	-0.40	15.30	0.54	0.56	0.05	16.46	0.00	0.00	16.46	16.46	100.00	0.00	4.23	4.50	468.73	57.17
2AC	30 - 60	7.75	7.35	-0.40	16.16	0.47	0.16	0.04	16.84	0.00	0.00	16.84	16.84	100.00	0.00	2.94	9.30	544.66	60.50
3C	60 - 100	7.82	7.44	-0.38	12.82	0.46	0.07	0.07	13.42	0.00	0.00	13.42	13.42	100.00	0.00	0.88	1.00	317.58	54.00
4C	100 - 180	8.08	7.04	-1.04	12.02	0.62	0.02	0.10	12.76	0.00	0.00	12.76	12.76	100.00	0.00	0.37	12.10	330.17	32.33
P09-Pantoterric Anthrosols (Pantohypereutric, Pantoloamic)/3414 m.s.l.m																			
Ap	0 - 45	7.89	7.07	-0.82	21.74	0.70	0.55	0.07	23.06	0.00	0.00	23.06	23.06	100.00	0.00	2.58	2.10	271.24	68.50
2Ab	45 - 75	7.81	7.05	-0.76	27.40	1.43	0.12	0.12	29.07	0.00	0.00	29.07	29.07	100.00	0.00	2.20	0.30	455.44	73.33
2ABb	75 - 110	7.82	7.10	-0.72	27.25	1.29	0.10	0.09	28.73	0.00	0.00	28.73	28.73	100.00	0.00	2.39	1.30	241.42	72.33
2BAb	110 - 140	7.59	6.91	-0.68	25.11	2.90	0.10	0.16	28.17	0.00	0.00	28.17	28.17	100.00	0.00	0.92	1.40	141.24	97.08
3Ab	140 - 180	7.76	6.93	-0.83	28.64	5.69	0.09	0.15	34.57	0.00	0.00	34.57	34.57	100.00	0.00	0.66	0.50	251.11	96.83
3ABb	180 - 200	7.85	6.98	-0.87	30.99	7.19	0.08	0.17	38.42	0.00	0.00	38.42	38.42	100.00	0.00	0.59	1.10	294.22	96.92
3C	200 - 260	7.91	7.23	-0.68	18.42	5.25	0.06	0.16	23.89	0.00	0.00	23.89	23.89	100.00	0.00	0.37	1.10	129.86	97.28
P10-Pantohypereutric Pantorhodic Endoprotovetic Cambisols (Pantoloamic, Ochric)/3602 m.s.l.m																			
Ap	0 - 30	7.10	6.33	-0.77	26.56	0.87	0.14	0.11	27.68	0.00	0.30	27.68	27.98	98.90	0.00	0.81	22.20	1248.66	52.50
Bi	30 - 50	7.69	6.54	-1.15	27.64	1.21	0.11	0.15	29.11	0.00	0.20	29.11	29.31	99.30	0.00	0.44	5.80	621.29	62.17
BC	50 - 110	7.88	6.64	-1.24	27.63	1.24	0.10	0.17	29.14	0.00	0.20	29.14	29.34	99.30	0.00	0.44	5.40	518.66	69.67
Cr	110 - 150	7.96	6.70	-1.26	29.61	1.49	0.13	0.19	31.42	0.00	0.20	31.42	31.62	99.40	0.00	0.22	1.70	486.53	74.67

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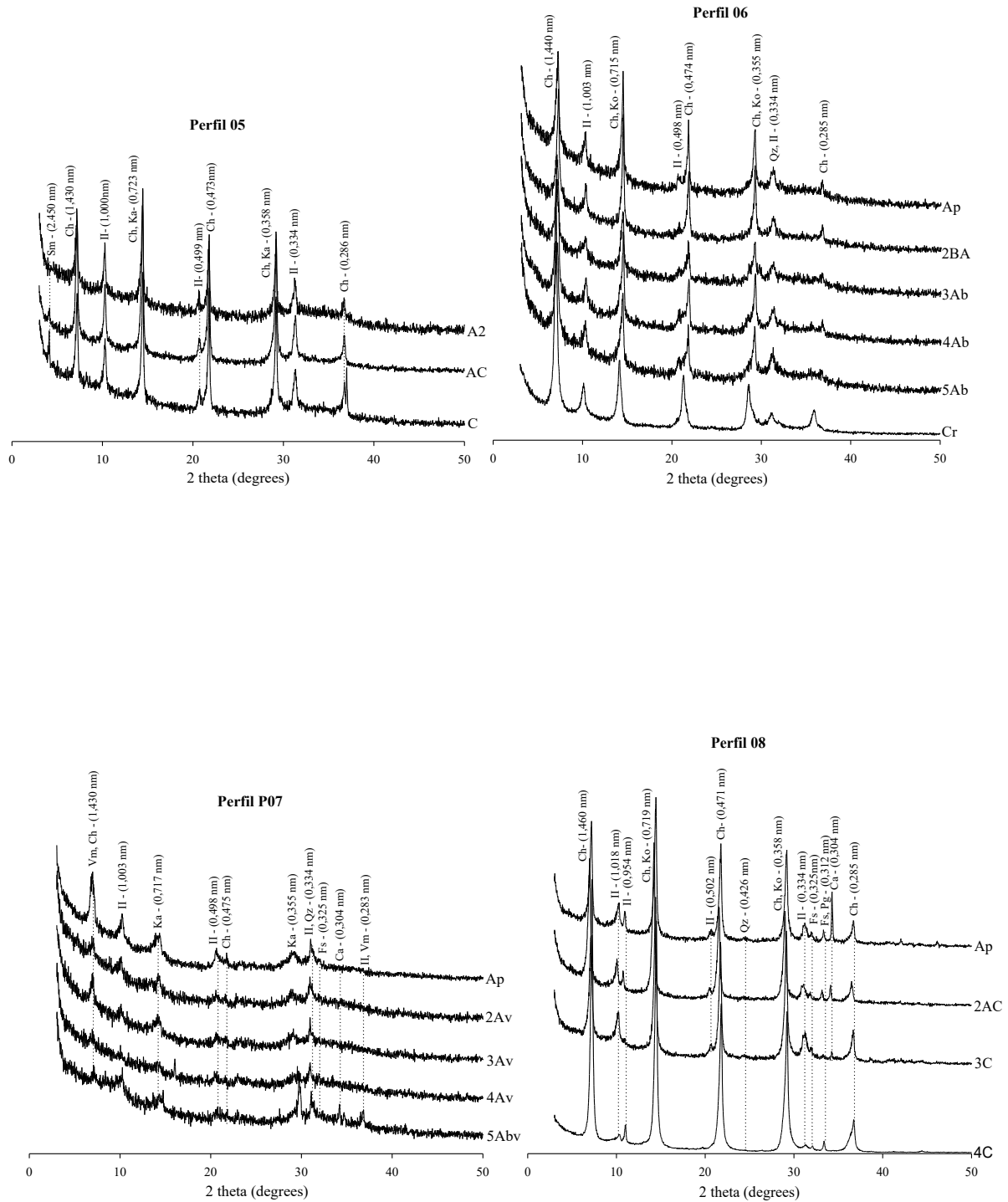
Profile	Depth	pH		ΔpH	Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	SB ^a	Al ³⁺	H+Al ^b	ECEC	CEC	V	m	OC	P _a	P _t	P ^a
		H ₂ O	KCl																
	cm	cmol _c .kg ⁻¹								-----%-----		%	mg.kg ⁻¹		%				
P11-Pantohypereutric Pantofluvic Fluvisols (Pantoloamic, Ochric)/3449 m.s.l.m																			
Ap	0 - 5	7.06	6.74	-0.32	12.60	0.72	0.35	0.13	13.80	0.00	0.80	13.80	14.60	94.50	0.00	4.78	81.10	553.94	32.50
C1	5 - 40	7.66	6.98	-0.68	10.38	0.66	0.25	0.10	11.39	0.00	0.20	11.39	11.59	98.30	0.00	0.74	41.50	457.44	41.00
C2	40 - 65	7.85	7.09	-0.76	11.64	0.46	0.13	0.10	12.34	0.00	0.20	12.34	12.54	98.40	0.00	0.66	31.30	483.45	48.83
C3	65 - 110	7.84	7.18	-0.66	11.71	0.47	0.09	0.16	12.43	0.00	0.00	12.43	12.43	100.00	0.00	0.66	27.20	492.82	45.83
C4	110 - 150	7.85	7.33	-0.52	11.37	0.53	0.06	0.18	12.14	0.00	0.00	12.14	12.14	100.00	0.00	0.59	36.30	-	52.50
P12-Epidystric Cambisols (Anoclayic, Ochric)/3590 m.s.l.m																			
A	0 - 10	7.04	6.19	-0.85	8.94	2.11	0.82	0.05	11.92	0.00	1.90	11.92	13.82	86.30	0.00	3.86	5.80	475.20	55.67
Bw	10 - 30	5.19	3.81	-1.38	2.66	0.74	0.28	0.03	3.72	1.55	7.90	5.27	11.62	32.00	29.40	1.91	2.20	520.70	83.83
BC	30 - 60	5.04	3.92	-1.12	4.02	1.94	0.12	0.08	6.16	0.68	4.80	6.84	10.96	56.20	9.90	0.66	4.50	-	84.17
Cr	60 - 120	6.03	5.06	-0.97	8.22	4.23	0.11	0.10	12.66	0.00	1.40	12.66	14.06	90.00	0.00	0.15	1.30	-	73.17
P13 - Endopetrocalcic kastanozems (Loamic, Endodensic)/3192 m.s.l.m																			
Ap	0 - 15	7.95	6.98	-0.97	24.70	0.74	0.28	0.20	25.92	0.00	0.00	25.92	25.92	100.00	0.00	2.65	14.30	172.33	96.82
A2	15 - 40	7.87	6.91	-0.96	27.93	0.63	0.11	0.16	28.83	0.00	0.00	28.83	28.83	100.00	0.00	1.54	9.90	328.35	96.50
AC	40 - 60	7.82	6.99	-0.83	23.65	0.53	0.07	0.18	24.43	0.00	0.00	24.43	24.43	100.00	0.00	1.32	1.90	335.98	96.38
Ck1	60 - 90	7.79	7.39	-0.40	12.68	0.39	0.03	0.85	13.95	0.00	0.00	13.95	13.95	100.00	0.00	0.81	0.10	-	77.50
Ck2	90 - 120	7.35	7.15	-0.20	99.41	0.54	0.04	0.18	100.17	0.00	0.00	100.17	100.17	100.00	0.00	0.44	1.70	-	66.00

SB-Sum of bases, ECEC-Effective Cation Exchange Capacity, CEC-Cation Exchange Capacity at pH 7.0), V (%)-Base saturation, m (%)-Aluminum saturation, OC-Organic carbon, Pa-Available Phosphorus P, Pt-Total Phosphorus

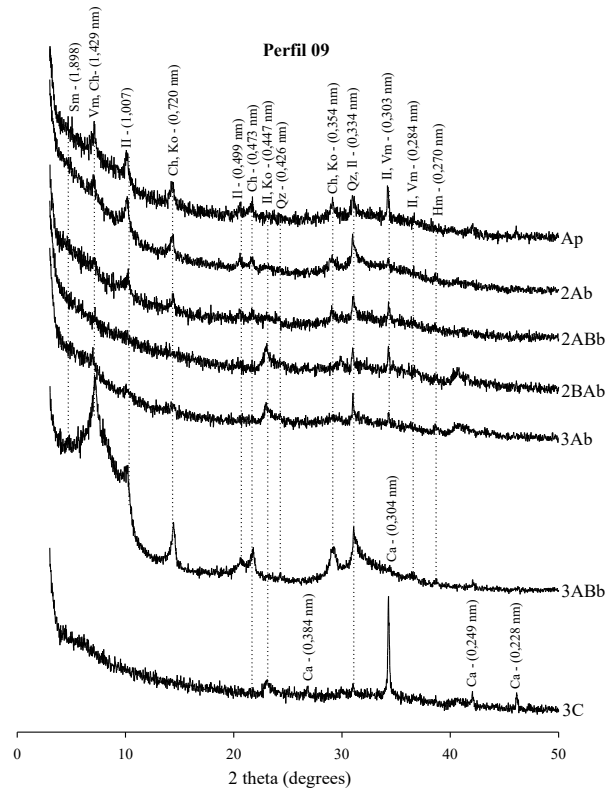
X-ray diffraction of the clay fraction



X-ray diffraction of the clay fraction. (Ko = kaolinite; Ch = chlorite; Il = illite; Fd = feldspar; Pg = plagioclase; Qz = quartz; Hm = hematite; Vm = vermiculite; Ca = calcite)



X-ray diffraction of the clay fraction. (Ko = kaolinite; Ch = chlorite; Il = illite; Fd = feldspar; Pg = plagioclase; Qz = quartz; Hm = hematite; Sm = smectite; Vm = vermiculite; Ca = calcite)



X-ray diffraction of the clay fraction. (Ko = kaolinite; Ch = chlorite; Il = illite; Qz = quartz; Hm = hematite; Sm = smectite; Vm = vermiculite; Ca = calcite)