PHYSICAL AND CHEMICAL FEATURES OF THE, PELOSOIL PRELUVOSOIL, AND EUTRICAMBOSOIL WITHIN THE PERIMETER OF THE REMETEA MARE COMMUNE (COUNTY OF TIMIS)

PROPRIETĂȚILE FIZICO-CHIMICE ALE PELOSOLULUI, PRELUVOSOLULUI ŞI EUTRICAMBOSOLULUI DIN PERIMETRUL COMUNEI REMETEA MARE, JUDEȚUL TIMIŞ

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Abstract: *Soil within the studied perimeter have developed through the interaction of a complex of soil and climate factors among which the most important ones are relief, water, parental rock, climate, vegetation, and man.*

Rezumat: *Solurile din perimetrul cercetat s-au format prin interacțiunea complexului de factori npedogenetici dintre care cei mai importanți sunt: relieful, apa, roca parentală, clima, vegetația, omul.*

Key words*: soil, physical and chemical features*
Cuvinte cheie: *sol, proprietăți fizice şi chimice*

INTRODUCTION

The Remetea Mare commune is part of the "Banat-Crisana" physical and geographical unit, being one of the three peri-Carpathian units located on the Western side of the Western Carpathians, and covering distinct but closely linked sub-units through their genesis, evolution, and land use, i.e. the Banat-Crisana Hills and the Banat-Crisana Plain.

MATERIAL AND METHOD

The researches were carried starting from the Pedologic study methodology from the Standards for soil analysis laboratories.

-soil solution pH after the potentiometric method, in an aqueous extract 1:2,5;

-Mobile P and mobile K werw extracted in ammonia lactate acetate and they were determined from flam photometric point of view;

-Humus was determined by the wal kley Black dichromatic method;

-Tital N rating was made by the kjeldhal method;

-Carbonate content was determined from a gas volumetric point of wiew by the Scheibler method;

-Total cation change capacity (T) was determined by the Bower method;

-Bases saturation degree (V) was calculated on the ground of SB and SH.

In the development of preluvosoils, there has been a relatively apparent manifestation of the levigation (illuvion) process. Thus, altering, levigation, debasification, and migration of mineral colloids are more intense. Salt oxidation and levigation processes lead to the formation of eutricambosoils. Aluviosoils can be met on high forms (tops of bank ridges) or in the near vicinity of the overflowing river beds depositing coarse material.

RESULTS AND DISCUSSION

Pelosoil The texture is loamy-clayish between 0 and 175 cm. Total porosity is low between 0 and 35 cm, very low between 35 and 60 cm, and low between 60 and 90 cm. Apparent density is medium between 0 and 15 cm, high between 15 and 35 cm, very high

between 35 and 60 cm, and high between 60 and 90 cm. Field capacity is medium between 0 and 90 cm. The wilting coefficient is high between 0 and 90 cm. Soil reaction is neutral between 0 and 60 cm and low alkaline between 60 and 175 cm. $CaCO_3$ content is absent between 0 and 60 cm, low between 60 and 135 cm, and medium between 135 and 175 cm. Humus supply in the first 50 cm is high. Nitrogen index is medium between 0 and 60 cm.

Table 1

Physical – chimical propritios of the soil: Pelosoil

Orizont Adâncimea orizontului	Ap 0-15	Apt 15-35	ABw2 35-60	ABw3 60-90	Btw3 90-135	BCw 135-175
Nisip grosier 2,0-0,2mm	2,3	3,1	1,0	0,7	0,8	1,0
Nisip fin 0,2-0,02mm	32,5	34,3	35,3	35,6	34,4	34,8
Praf 0,02-0,002mm	27,6	25,6	25,1	25,2	24,9	23,5
Argilă 0,002mm	37,6	37,0	38,6	38,5	39,9	40,7
TEXTURĂ	TT	TT	TT	TT	TT	TT
Densitate specifică (g/cm^3)	2,55	2,60	2,63	2,85		
Densitate aparentă	1,40	1,50	1,62	1,57		
Porozitate totală (PT%)	45,10	42,31	38,40	44,91		
Porozitate de aerație	12,13	7,03	0,14	7,84		
Grad de tasare (GT%)	11,79	17,09	25,13	12,42		
Grad de higroscopicitate	8,81	8,67	9,04	9,02		
Coeficient de ofilire	13,21	13	13,56	13,53		
Capacitatea de camp	23,55	23,52	23,62	23,61		
Capacitate totală (CT%)	32,21	28,21	23,70	28,61		
Capacitate de apă utilă	10,34	10,52	10,06	10,08		
Capac. De cedare max.	8,66	4,69	0,08	5,0		
Cond. Hidraulică	1,3	0,85	0,50	0,58		
pH (în H_2O)	7,20	7,01	7,16	7,58	7,75	8,04
Carbonați $CaCO_3$				0,17	0,34	4,58
Humus	3,43	2,46	2,22			
I.N.	3,43					
Rezerva de humus (t/ha)	199,78					
P mobil	50,6	46,4				
K mobil	123	127				

Table 2

Physical – chimical propritios of the soil: Preluvosoil

Orizont Adâncimea orizontului	Ap 0-22	Ahw2 22-35	Aow2 35-53	ABw3 53-68	Btw3 68-88	BCw 88-150
Nisip grosier 2,0-0,2mm	1,8	2,0	1,2	1,7	0,9	2,8
Nisip fin 0,2-0,02mm	31,8	31,1	32,0	31,5	31,0	31,5
Praf 0,02-0,002mm	32,3	34,2	27,7	25,2	27,7	22,4
Argilă 0,002mm	34,1	32,7	39,1	41,6	40,4	43,3
TEXTURĂ	LA	LA	LA	LA	LA	LA
Densitate specifică (g/cm^3)	2,50	2,55	2,62	2,64	2,59	-
Densitate aparentă	1,40	1,50	1,58	1,58	1,68	-
Porozitate totală (PT%)	44	41,18	39,69	40,15	37,45	-
Porozitate de aerație	11,34	6,31	2,32	2,55	0,99	-
Grad de tasare (GT%)	12,97	18,18	22,74	22,46	27,41	-
Grad de higroscopicitate	7,99	7,67	9,16	9,74	9,46	-
Coeficient de ofilire	11,99	11,50	13,74	14,61	14,19	-
Capacitatea de camp	23,33	23,25	23,65	23,80	23,73	-
Capacitate totală (CT%)	31,43	27,45	25,12	25,41	23,12	-
Capacitate de apă utilă	11,34	11,75	9,91	9,19	9,54	-
Capac. De cedare max.	8,10	4,20	1,47	1,61	0,61	-
Cond. Hidraulică	1,80	1,0	0,5	0,48	0,40	-
pH (în H_2O)	5,96	6,11	6,33	6,51	6,58	6,75
Humus	3,57	2,50	1,48			
I.N.	3,07	1,91	1,22			
C:N	2,36	1,46	1,0			
Rezerva de humus (t/ha)	193,79					
S.B.	18,08	18,29	21,49	24,04	24,46	25,74
SH me	5,47	5,58	4,62	4,62	3,82	2,76
T me	23,55	23,87	26,11	28,66	28,28	28,50
V %	76,77	76,62	82,30	83,87	86,49	90,31
P mobil	26,8	36,4				
K mobil	143	110				

Table 3

Physical – chimical propritios of the soil: Eutricambosoil

Orizont Adâncimea orizontului	Ap 0-23	Ath 23-35	Ao 35-52	AB 52-70	Bv 70-94	B/C 94-135	Cg1 135-175	Cg2 175-190
Nisip grosier 2,0-0,2mm	12,8	18,2	15,4	12,4	11,5	9,0	10,7	76,5
Nisip fin 0,2-0,02mm	46,1	42,8	39,3	39,4	40,3	48,0	62,6	15,2
Praf 0,02-0,002mm	23,5	21,9	23,1	22,3	22,2	20,2	14,5	4,3
Argilă 0,002mm	17,6	17,1	22,2	25,9	26,0	22,8	12,2	4,1
TEXTURĂ	SM	SM	LL	LL	LL	LL	UM	NG
Densitate specifică	2,60	2,90	2,54	2,75				
Densitate aparentă	1,45	1,66	1,60	1,65				
Porozitate totală	44,23	42,76	37,01	40,0				
Porozitate de aerație (PA%)	11,47	6,21	0,87	2,35				
Grad de tasare (GT%)	7,60	10,53	23,88	18,73				
Coef. de higroscopicitate	4,14	4,03	5,21	6,08				
Coeficient de ofilire	6,21	6,04	7,22	9,12				
Capacitatea de camp (CC%)	22,59	22,02	22,59	22,82				
Capacitate totală	30,50	25,76	23,13	24,24				
Capacitate de apă utilă	16,38	15,98	14,77	13,70				
Capac. De cedare max.	7,91	3,74	0,54	1,42				
pH (în H_2O)	5,22	5,39	6,14	6,42	6,47	6,51	6,53	6,38
Humus	2,14	1,48	0,95					
I.N.	0,98	0,79	0,62					
Rezerva de humus (t/ha)	123,65							
S.B.	6,96	6,96	8,58	13,43	15,65	17,47	15,85	3,53
SH me	8,13	6,01	4,59	4,39	4,49	3,68	2,97	1,86
T me	15,09	12,97	13,17	17,82	20,14	21,15	18,82	5,39
V %	46,12	53,66	65,14	75,36	77,06	82,60	84,21	65,49
P mobil	31,6	34,8						
K mobil	92	80						

Preluvosoil The texture is loamy-clayish over the entire profile. Total porosity is low between 0 and 22 cm and very low between 22 and 80 cm. Apparent density is medium between 0 and 22 cm, high between 22 and 68 cm, and very high between 68 and 88 cm. Field capacity is medium between 0 and 88 cm. The wilting coefficient is medium between 0 and 35 cm and high between 35 and 88 cm. Soil reaction is low acid between 0 and 150 cm. Soil reaction is low acid between 0 and 150 cm. Humus supply in the first 50 cm is high. Nitrogen index is medium between 0 and 22 cm and low between 22 and 53 cm.

Eutricambosoil The texture is loamy-sandy between 0 and 35 cm, medium loamy between 35 and 135 cm, loamy-sandy between 135 and 175 cm, and coarse sandy between 175 and 195 cm. Total porosity is medium between 0 and 35 cm, very low between 35 and 52 cm, and low between 52 and 78 cm. Apparent density is low between 0 and 35 cm and high between 23 and 70 cm. Total capacity is medium between 0 and 70 cm. The wilting coefficient is low between 0 and 52 cm and medium between 52 and 70 cm. Soil reaction is moderately acid between 0 and 35 cm and low acid between 35 and 195 cm. Humus supply in the first 50 cm is medium. Nitrogen index is low between 0 and 52 cm.

CONCLUSIONS

Pelosoil has low limitations due to its texture and to its degree of unevenness.

Preluvosoil has moderate limitations due to the setting degree, and low limitations due to texture, unevenness degree, and surface moisture excess.

Eutricambosoil has low limitations due to the unevenness degree and to phreatic matter moisture excess.

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