CONSIDERATIONS ON THE REDDISH PRELUVOSOILS FROM THE SOUTHERN PART OF THE GETIC PLATEAU

CONSIDERAŢII ASUPRA PRELUVOSOLURILOR ROŞCATE DIN PARTEA DE SUD A PODIŞULUI GETIC

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Abstract:*The knowing of the reddish preluvosoils from the Southern Part of the Getic Plateau has theoretical importance and practical one because it provide to the farmers data on the agricultural use. After the analyses we have made we described and analysed the reddish soil units: preluvosoil reddish molic, reddish preluvosoil low luvic and stagnic. With every soil unit there are presented the physic chemical features on whose basis there are made the technical recommendations.*

Rezumat: *Cunoaşterea preluvosolurilor roşcate din partea de sud a Podişului Getic prezintă importanţă teoretică şi practică, deoarece pune la dispoziţia specialiştilor din agricultură date privind folosirea raţională a fondului funciar. În urma cercetărilor efectuate au fost identificate, descrise şi analizate trei unităţi de preluvosoluri roşcate: preluvosol roşcat molic, preluvosol roşcat slab luvic şi preluvosol roşcat stagnic. La fiecare unitate de sol sunt prezentate principalele proprietăţi fizico-chimice pe baza cărora se fac recomandări de folosire raţională.*

Keywords: *preluvosoil, stagnic, luvic, texture, structure*
Cuvinte cheie: *preluvosol, stagnic, luvic, textură, structură*

INTRODUCTION

The reddish preluvosoils are encountered on large surfaces in the SW part of Romania beginning with West of Bucharest till Turnu Severin. In Oltenia, the reddish preluvosoils occupies the Southern part of the Getic Plateau occupying a 350,000 ha surface. These soils make the transition between the cambic and clayey chernozems from the high plane and the typical preluvosoils from the hilly zone and plateau.

Analysing the main components of the studied clime there can be noticed the strong influence of the Mediterranean climate. In this manner, the average annual temperatures vary from 9.5 to 11.8^{0}C and the average rainfalls are between 500-600 mm. The relief is hilly having plateaus, versants and valleys in the Olt and Jiu Rivers. The natural vegetation is represented by oak woods with herbs. The parental material is represented by detritic sediments (silt, clay, stones, loess, sands) with a middle or good drainage.

MATERIAL AND METHOD

The researches have unfolded according with the ICPA instructions, by field and laboratory studies. By field research there have been identified the main soil types and there were described their morphological properties. By laboratory analyses there have been researched the main physic-chemical features on whose basis there were made the appreciation of the productive potential and the rational use of the land.

RESULTS AND DISCUSSION

In these varied climes, vegetation and parental material conditions within the studied zone there have been identified the following reddish units of the preluvosoil:

- Reddish molic preluvosoil are encountered in the southern part on the transition relief between plateau and plane. They were formed on loess. Morphologically they have: Am – AB – Bt – C.
- Am horizon: 0-35 cm brown dark colour (7.5YR3/2) in wet stage and brown grey (7.5YR4/2) in dry phase; loamy texture; middle and large granular structure; medium porous; average compact; frequent porous roots; rare earthworms' feces; slow passing.
- AB horizon: 35-49 cm brown colour with reddish hue (5YR5/4) when wet; loamy-clayey texture; angular poliedric structure; fine porous; compact; slow passing.
- Bt horizon: 49-150 cm brown reddish colour (5YR5/4) when wet with yellow hues at the base; clayey texture; prismatic structure; fine porous; compact; evident clay films at the surface of the soil crumbles; slow passing.
- C horizon: under 150 cm; yellow with whitish stains of lime; loamy texture; unstructured; effervescence.

Analysing the main physic-chemical properties of the molic reddish preluvosoil from the Southern part of the Getic Plateau the soil has a sand content of 35-47.2%, loam 18.7-23.9% clay 28.9-44% (table 1). The bulk density increases from 1.33 to 1.55 g/cm^3 and the porosity is about 50%.

Chemically, the humus content is 3.2%, the reaction is low acid pH=6.7 and the bases saturation degree is 90%.

Table 1

The main physic-chemical features of the molic reddish preluvosoil from the Southern part of the Getic Plateau

Horizon (cm)	Sand 2-0,2 mm	Loam 0,2-0,02mm	Clay sub 0,002mm	Da g/cm^3	Pt %	Humus %	pH (H_2O)	V%
A_m 0-35	47,2	23,9	28,9	1,33	50	3,20	6,7	90
AB 35-49	45,1	21,1	33,8	1,40	48	1,85	6,8	91
B_t 49-150	35,1	20,9	44,0	1,50	45	1,04	7,0	95
C >150	45,7	18,7	35,6	1,51	44	0,65	7,3	100

-The luvic reddish preluvosoil occupies the largest surfaces of the studied zone, its formation being related with the microdepresionary relief with low drainage due to longer period water logging. The water logging condition intensify the alteration processes, debaseification and eluviation that wash the colloidal silica that is sedimented at the surface of the structural elements giving a grey colour by drying.

Morphologically, this soil is characterized by the following profile: Ao – EB – Bt –C.

-Ao horizon: 0-20 cm; dark brown colour (10YR3/3) when wet and grey brown dry (YR5/3); loamy-clayey texture; granular structure; medium porous; medium compact; silica deposits on the soil crumbles; iron and manganese accumulations; slow passing.

- EB horizon: 20-37 cm brown grey colour (10YR 5/3) when wet and whitish brown dry (10YR5/3) loamy-clay texture; large poliedric angular structure; fine porous; rare accumulations of quartz with no colloidal film; frequent iron and manganese accumulations; slow passing.

- Bt horizon: 37-180 cm; dark brown reddish colour (5YR3/4) when wet and brown reddish dry (5YR4/4); clay-loamy texture; prismatic structure; fine porous; compact;

evident pellicle of clay on the soil crumbles; frequent iron and manganese accumulations.

- C horizon: under 180 cm; yellow reddish colour; loamy-clayey texture; unstructured; doesn't make effervescence.

The luvic reddish preluvosoil is characterized by a sand content of 38% and 53%, loam between 18.5 and 22.4% and clay from 27.5% to 40.8% in Bt horizon (table 2). The soil compacted at the surface the total porosity reaching 43% from 48%. It has an acid reaction of 5.4 and it is low supplied by humus (1.48%) and the bases saturation degree is 59% in the Ao horizon.

Table 2

The main physic-chemical features of the molic reddish preluvosoil from the Southern part of the Getic Plateau

Horizon (cm)	Sand 2-0.2 mm	Loam 0.2-0.02mm	Clay sub 0.002mm	Da g/cm^3	Pt %	Humus %	pH (H_2O)	V%
Ao	53.1	19.4	27.5	1.39	48	1.48	5.4	59
EB	48.9	18.5	32.6	1.52	44	0.58	5.7	70
Bt	38.1	21.1	40.8	1.55	43	0.49	5.9	80
C	43.3	22.4	34.3	1.55	43	0.30	6.4	87

The stagnic reddish preluvosoil occupies small surface in the studied zone being encountered in some microdepresions where the water logging process is longer. The water logging is determined by an impenetrable layer below that implies reduction processes into the soil.

Morphologically, the soil is characterized by a profile: Ao – Abw – Btw – Bt.

-Ao horizon: 0-23 cm; grey brown colour (10YR5/2) when wet and grey whitish dry (YR6/2); loamy or loamy-clayey texture; granular structure well formed; medium porous; medium compact; iron and manganese accumulations; slow passing.

-ABw horizon: 23-40 cm; brown grey colour (5YR 3/2) with frequent purple stains (5YR3/2); loamy-clay texture; prismatic structure; fine porous; compact; frequent iron and manganese accumulations; slow passing.

-Bt horizon: under 110 cm; dark brown reddish colour (5YR4/2); clay loamy texture; prismatic structure; fine porous; evident film clay at the surface of the soil crumbles.

As regard the size, the stagnic reddish preluvosoil is characterized by lower sand content and higher of clay that reaches 48% (table 3). The soil is more compacted, the bulk density being in Ao of 1.4 g/cm^3 and the porosity of 47%. It is low supplied by nutritive elements and the reaction is acid.

Table 3

The main physic-chemical features of the stagnic reddish preluvosoil from the Southern part of the Getic Plateau

Horizon (cm)	Sand 2-0.2 mm	Loam 0.2-0.02mm	Clay sub 0.002mm	Da g/cm^3	Pt %	Humus %	pH (H_2O)	V%
Ao	45.2	23.4	31.4	1.40	47	2.2	5.5	70
ABw	41.8	23.7	34.5	1.48	45	1.06	5.7	77
Btw	33.3	21.0	43.7	1.50	44	0.9	5.8	79
Bt	32.2	19.9	47.9	1.55	43	0.7	5.9	82

CONCLUSIONS

After the researches that have been carried out in the field and in the laboratory there can be noticed that the preluvosoils have an average or low fertility that can be used for cropping; they need deep tillage reclamation and organic-mineral fertilization.

LITERATURE

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