THE MAIN TYPES OF SOILS IN PERIMETER VINEYARDS MINIŞ-MĂDERAT, ARAD COUNTY

PRINCIPALELE TIPURI DE SOLURI DIN PERIMETRUL PODGORIEI MINIŞ-MĂDERAT, JUDEŢUL ARAD

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***Abstract**: Vineyard Minis - Măderat is situated in the county of Arad. Massif vineyard extends over a distance of 32 km, with the ends Şoimuş hill to the south and north Pâncota village. From Radna, massive headed west to Păuliş, where the direct north to Pâncota. South of Move, vineyard east branch towards the village of Madeira. The northern part of the vineyard is within the Piedmont Tarnova of depression Zarand and the west and south is the last of the mountains Highiş-Drocea endings. Viticultural area is between the hills takes massive mountain, meadow and river Mures Western Plain.*

***Rezumat:** Podgoria Miniş-Măderat este situată pe teritoriul judeţului Arad. Masivul viticol se întinde pe distanţa de 32 km, având ca extremităţi dealul Şoimuş la sud şi satul Pâncota la nord. De la Radna, masivul se îndreaptă spre vest până la Păuliş, de unde ia direcţia nord până la Pâncota. La sud de Mîsca, podgoria se ramifică spre est în direcţia satului Măderat. Partea nordică a podgoriei se încadrează în piemontul Târnovei din depresiunea Zarandului, iar partea vestică şi sudică este reprezentată de ultimele terminaţii ale munţilor Highiş-Drocea. Zona viticolă este cuprinsă între dealurile ce îmbracă masivul muntos, lunca râului Mureş şi Câmpia de Vest.*

***Keywords:** soil, aluviosol, mold, faeoziom, eutricambosol*
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INTRODUCTION

Soil plays many roles, natural resource, support and room for many activities, but most important is its role in crop production.

MATERIALS AND METHODS

For the preparation of this paper were collected soil samples from the perimeter Podgoriei mini-Madera, Arad county, which then were analyzed at the County Office of Soil and Agrochemical Studies Arad. Samples were processed the analysis performed to determine the chemical properties, physical and physico-chemical properties of soil.

Determination of particle size composition was Kacinscki method. Apparent density was determined by metal cylinders. The density was determined by pycnometer. PH determination was made by potentiometric method.

Results were faced with developing methodology for their classification Pedology Studies in different categories.

The different types and groups of genetic soil types existing today in the perimeter are the result of the actions sought in time and space complex pedogenetici factors (underlying rock, landscape, climate, vegetation, hydrography, hydrology, fauna) plus the influences caused by human actions from draining and drainage works to intensive agriculture today.

Thus in the low lying plains in the west and southwest of the territory, in a climate with average annual rainfall of 600-700 mm and average annual temperature of 10-11 ° C, to form a large variety of types and subtypes of soils as a result of differential action of groundwater level in the profile, the microreliefului and parental rocks.

Soils formed in these conditions are a relatively recent stage of soil formation as a result of having little time out of the water. The process of soil formation is relatively recent and their direction of development is dictated largely by the microrelief forms they occupy and thus the groundwater level in the profile, and the nature of parental rocks.

Thus, parental rocks lodged in the area are mostly from very diverse river deposits (sand, gravel, clay, clay inflatable, etc..).

On the beam or flat forms on rocks rich in CaCO3, with good drainage soils formed cernisoluri class.

On depression forms in terms of strength of excess moisture and stagnant groundwater and finally rule on parental rocks (clay) soils formed hidrisoluri specific class.

A particular case is the soils formed, usually by type depression, but the parental rocks represented by clays inflatable. These clays in wet periods of the year gonflează, increasing the volume further, and in periods of drought and it decreases leading to large polygonal cracks. Interaction of two phenomena arise within soil sliding surfaces.

This phenomenon is known as vertisolaj and specific class vertisolurilor. In the plain high diversity of soil types and subtypes is lower and the determining factor in this regard is the parental rock.

Thus the loessuri or loessoide deposits formed cernisolurilor class soils and on luturi or clays were formed, usually in class luvisolurilor soil (soil horizon luvic). Groundwater in this area, being the great depths (5-10 m) less or no influence pedogenetice processes. Depending on the shape and intensity of action for complex pedogenetici factors (relief, rock, climate, hydrology, vegetation, fauna) and human interference, soil formation processes has developed and different intensity of which result are the different types and groups of genetic soil types, related or totally different.

In close correlation with the variety of geomorphological factors determining the existence of diversified relief units, those geolitologici leading to a variety of parent materials, or of the hydrological and edaphic, and the various anthropogenic interventions resulted different soils (related or totally different between them), constantly evolving.

The Romanian System of Soil Taxonomy (SRTS-2003) in the area investigated were identified soil classes 6, 7 types and 22 subtypes of soil (Table 1).

Class Protisoils (Table 1 and Figure 1) with an area of 109.71 hectares (18%) of the investigated area, and most representative of this class type of soil is aluviosoil.

Class Cernisoils (Table 1 and Figure 1) with an area of 73.14 hectares (12%) of the investigated area.

Class Cambisoils (Table 1 and Figure 1) with an area of 146.28 hectares (24%) of the investigated area.

Class Luvisoils (Table 1 and Figure 1) with an area of 207.23 hectares (34%) of the investigated area.

Class Hidrisoils (Table 1 and Figure 1) with an area of 36.57 hectares (6%) of the investigated area, and most representative of this class is gleiosoil types.

Class Pelisoils (Table 1 and Figure 1) with an area of 182.85 hectares (30%) of the investigated area, and most representative of this class type of soil is vertosoil.

Table 1

Classes, types and subtypes of vineyard soils Minis - Măderat

Soil class	Soil type	Subtype	Surface(ha)	%
Protisoils	**Aluviosoil**	**Tipic**	**60,95**	**10**
		Gleic		
		Vertic		
		Coluvic		
Cernisoils	**Haplic Chernozem**	**Tipic**	**60,95**	**10**
		Cambic		
		Gleic		
		Sodic		
		Vertic		
		Argic		
	Phaeozem	**Cambic**		
Cambisoils	**Eutricambosoil**	**Gleic**	**146,28**	**24**
Luvisoils	**Preluvosoil**	**Molic**	**182,85**	**30**
		Stagnic		
		Vertic		
Hidrisoils	**Gleiosoil**	**Tipic**	**36,57**	**6**
		Vertic		
		Cambic		
		Molic		
Pelisoils	**Vertosoil**	**Tipic**	**121,9**	**20**
		Gleic		
		Stagnic		
TOTAL			**609,5**	**100**

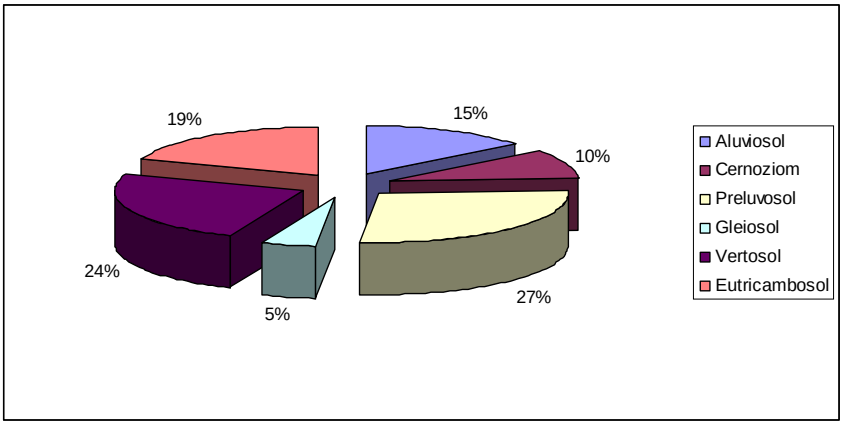

Figure 1 Graphical representation of percentage of participation of the main types of soils

CONCLUSIONS

The morphological characteristics, chemical and hifrofizice which directly influence the composition and living environment of plants and have a role on other properties of soil, an important role: gleizarea, stagnogleizarea, salinisation, alcalizarea, CaCO3 content, reaction soil humus reserve, texture, porosity, and permeability due edaphic volume, features more stable over time and easier to study and determined, even at current levels of equipment units profile.

Total vineyard area is 609.5 ha;

According to the Romanian System of Soil Taxonomy the soils encountered in the area studied were classified into 7 classes and 10 soil types as follows: aluviosoluri 6.72% 6.97% chernozems, faeoziomuri 0.5%, 5.3% eutricambosoluri , preluvosoluri 39.4% luvosoluri 5.49% 3.08% gleiosoluri, stagnosoluri 3.08% 27.66% vertosoluri and erodosoluri 1.8%; Outcome of treatment of the hydric soil, predominantly phreatic, state gleizare (Ind. 14) serves to separate the varieties of soil and for some subtypes, while causing favorability for certain cultivated plants. Although some authors consider that a doubling gleizare status indicator that refer to groundwater depth (Ind. 39), analyzing the current situation in the space created intense interventions studied hydro-pedo-improvement methods (drainage, drainage, adjustments, etc..) and climatic fluctuations (drought years, rainy years) can be considered that this indicator has its place in this well established methodology. The same situation is found and if stagnogleizare status as a result - mainly stagnant fluid regime in the soil profile or on his land (flat or depression) in shallow impermeable layer, the stagnation may be addressed only in periods wettest of the year, while their effects are long lasting, affecting both land productivity and some technological elements.

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