

THE WINEGROWING REGION OF THE DOBROGEA HILLS CHARACTERIZATION REGARDING MULTICRITERIAL CLIMATIC CLASSIFICATION (M.C.C.)

REGIUNEA VITICOLA A COLINELOR DOBROGEI CARACTERIZATA SUB ASPECTUL CLASIFICARII CLIMATICE MULTICRITERIALE (C.C.M.).

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Abstract. *In order to make a rational classification, useful in point of winegrowing region on Terra, J. Tonietto and A. Carbonneau (2000) suggested the climatic classification, each settled class being in the position of representing, in a realistic way, some climatic differences which will give the right reply of the grape vine or of the obtained production, all of this in point of a synthetic indicator.*

Therefore a multicriterional climatic classification was suggested, using three criterions, which are represented by three synthetic indicators: drought index (IS), heliothermal index (IH) and night cooling index (IF). The utilization of those indicators allowed making an opinion about climatic variability of the viticulture and the adequate settlement of the classification and of the climatic grouping for different winegrowing region.

Rezumat. *O cale larg folosita pe plan international de evaluare a aptitudinilor climatice ale unei podgorii sau ale unui centru viticol, pentru producerea vinurilor de calitate, este cuantificarea resurselor de temperatura, lumina si umiditate din perioada de vegetatie conventionala.*

Ca urmare a acestei situații, în ultimii ani, sub egida Organizației Internaționale a Viei și Vinului, cu sediul la Paris, au apărut mai multe lucrări în care s-a utilizat o metodologie nouă, care folosește concomitent un număr de trei indicatori sintetici cu caracter ecoclimatic (multicriterii: indicele de secetă – IS, indicele heliometric – IH și indicele de răcire al nopților – IF).

Acești indicatori, folosiți într-un sistem multicriterial, au fost calculați și pentru regiunea viticolă a Colinelor Dobrogei, utilizând date climatice pe o perioadă de până la 100 de ani, permițând astfel evidențierea diferențelor de climat din cadrul acestei regiuni și identificarea tipurilor de climat specifice, din cele 38 de tipuri ce se regăsesc la nivel mondial.

MATERIAL AND METHOD

In order to make this study, there have been utilized eco-climatic dates which concern the heliothermal resources and the hydric resources from the conventional vegetation period, from a number of 14 winegrowing centers from the Dobrogea Hills Region.

The obtained data base, was used in calculating the three synthetic indicators which have a eco-climatic character and are used by the multicriterional method: drought index (IS), heliothermal index (IH) and night cooling index (IF).

This indicators, used in a multicriterial system, had been calculated also for the wine growing center of the Dobrogea Hills, using climatic data stretched over a period of 100 years permitting in this way to see the different climate in this region, treat also to compare it with other wine-growing centers, offering the possibility to establish the wine-growing climate for each center, and also to outline the multicriteria climatic groups.

RESULTS AND DISCUSSIONS

The winegrowing climate of winegrowing centers from Dobrogea Hills Region.

After calculate the multicriterials index and their situation in specific variation classes (table 1) it can be observed that for the 14 winegrowing centers for Dobrogea Hills Region the climate vary just a little, respectively only the heliothermal index.

Table 1

WINEGROWING CLIMATES					
established based on multicriteria from Dobrogea Hills region					
Vineyard	Winegrowing centers	Drought index (IS)	Heliothermal index (IH)	Night cooling index – IF - (IX)	
				După media minimelor	După media temp. de noapte
Murfatlar	30.1 Murfatlar	IS ₂	IH ₄	IF ₃	IF ₂
	30.2 Medgidia	IS ₂	IH ₄	IF ₃	IF ₂
	30.3 Cernavodă	IS ₂	IH ₄	IF ₃	IF ₂
C.V.I.	0.28 Adamclisi	IS ₂	IH ₃	IF ₃	IF ₂
	0.29 Chirnogeni	IS ₂	IH ₄	IF ₃	IF ₂
	0.30 Mangalia	IS ₂	IH ₃	IF ₃	IF ₂
Istria	31.1 Istria	IS ₂	IH ₃	IF ₃	IF ₂
	31.2 Babadag	IS ₂	IH ₃	IF ₃	IF ₂
	31.3 Valea Nucarilor	IS ₂	IH ₃	IF ₃	IF ₂
Sarica Niculițel	32.1 Niculițel	IS ₂	IH ₄	IF ₃	IF ₂
	32.2 Tulcea	IS ₂	IH ₄	IF ₃	IF ₂
	32.3 Măcin	IS ₂	IH ₄	IF ₃	IF ₂
C.V.I.	0.31 Hârșova	IS ₂	IH ₄	IF ₃	IF ₂
	0.32 Dăeni	IS ₂	IH ₄	IF ₃	IF ₂

Hereby, the *drought index* is situated only in IS₂ class (climate with pronounced drought); *night cooling index* is situated only in cold nights climate class – IF₃, reaching the all 100% percent; the heliothermal index is the only which vary a little, meaning that it is situated in two classes, respectively IH₃ (temperate climate) and IH₄ (warm temperate climate), the last one being the dominant one, with 64% percent (figure 1).

We have here an unique situation for our country viticulture, the all 14 winegrowing centers which form this region being placed only in the pronounced drought climate (IS₂) and the cold nights climate (IF₃). There from it also result the possibility of happily growing for table grape sorts but also for red grape sorts for superior quality wine.

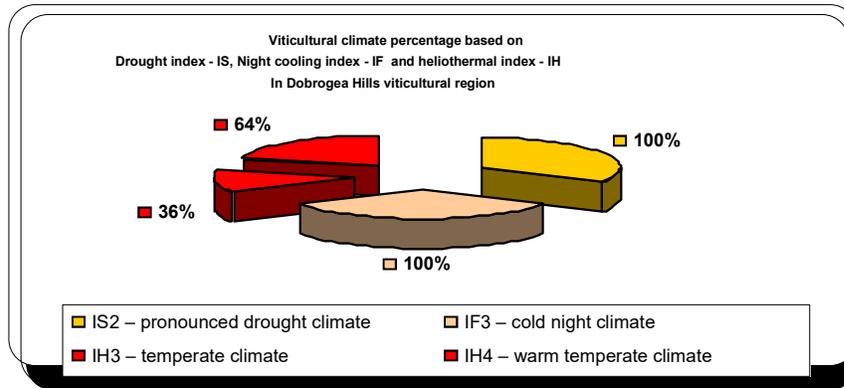


Figure 1 Viticultural climate – IS, IF, IH

The climatic groups representatives for the winegrowing centers from the Dobrogea Hills Region

In this winegrowing region frame it was delineated only two big climatic groups, from the all thirteen on the Romania territory (figure 2), respectively $IS_2 IH_3 IF_3$ and $IS_2 IH_4 IF_3$.

Regarding the number of constituent centers, these are different, thereby, the $IS_2 IH_3 IF_3$ group, characterized by pronounced drought, temperate and cold nights include five centers: Istrița, Babadag, Valea Nucarilor, Adamclisi and Mangalia, detaining 36% from total, and the $IS_2 IH_4 IF_3$ group represent the majority (64%), constituted from nine winegrowing centers: Murfatlar, Medgidia, Cernavodă, Niculițel, Tulcea, Măcin, Hârșova, Dăieni and Chirnogeni.

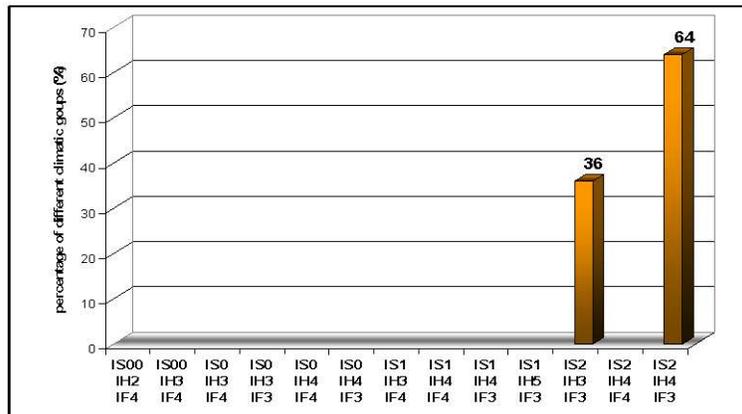


Figure 2 Percentage of different climatic groups (%)

The Dobrogea Hills winegrowing region climate is extremely uniform, with a line disposition for the two climatic groups, without significant discontinuities, having the drought index situated in IS_2 variation class, meaning that the winegrowing centers benefit of a pronounced drought index, based on a warm temperate (IH_4) or a temperate (IH_3) climate, with cold nights (IF_3).

In this region are some winegrowing centers (situated in IS_2 IH_4 IF_3 climatic group), where the climate is influenced by the presence of Black Sea or Dunare (Murfatlar, Cernavodă, Sarica-Niculițel), with favorable effects especially in autumn, having an important role of thermal regulator, and the water steams create a favorable atmospheric humidity.

CONCLUSIONS

1. In Dobrogea area viticulture the components of winegrowing climate, established by multicriterial vary like that:

- the drought and the night cooling index are stables, being situated in a single variation class, respectively pronounced drought climate (IS_2 – 100%) and cold nights climate (IF_3 – 100%). The drought index situated in IS_2 class punctuate the pronounced drought conditions, in which situation the irrigation must be a current practice.

- the heliothermal index is mobile and it is situated in the warm temperate climate class (IH_4 - 64%) but also in the temperate climate class (IH_3 - 36%).

Therefore we can say that we have no important differences regarding the hydric regime and the temperature conditions from the September nights, fact which condition the obtaining of superior sugar concentrations in must. The plus of heliothermal resources permit the grape maturation in normal conditions for table sorts from IV – VI epoch, that mean for all the growing from national actual sort.

2. The winegrowing centers from this region are distributed in two climatic groups, with different proportion (size), the Dobrogea winegrowing area being dominated by IS_2 IH_4 IF_3 - 64% class, characterized through pronounced drought, warm temperate, cold nights climate, near to IS_2 IH_3 IF_3 - 36% group, differentiated from the first class by replacing the IH_4 class with IH_3 class (temperate climate).

The climate elements presented in climatic groups: pronounced drought (IS_2), the warm temperate character of heliothermal index (IH_4), superimposed on September cold nights (IF_3), punctuate that in this month, the thermal conditions for grapes maturation are very favourable regarding the antocyanic pigmentation and tannin content from wine, but less favourable for specific sort aroma forming, especially for white wines.

3. The Dobrogea Hills winegrowing region has the smallest number of winegrowing climate from our country, only two types, representing 5% from the 38 world types.

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