

ON THE BEHAVIOR OF SOME NATIONAL AND FOREIGN CULTIVARS OF CHAMOMILE IN THE CONDITIONS OF S.D.E. TIMIȘOARA

COMPORTAREA UNOR CULTIVARE AUTOHTONE ȘI STRĂINE DE MUȘEȚEL ÎN CONDIȚIILE DE LA S.D.E. TIMIȘOARA

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Abstract: *The invasion of medicinal and cosmetic natural products brings one other opportunity for cultivators, chamomile being one of the most used medicinal plants in these domains. The paper proposes to come in farmers help by the study of some nationals and foreign cultivars of chamomile that fit in Banat area. Research pointed out the fact that both cultivars have high yield capacity, still the Agrosel line had the highest production (861 kg/ha dry inflorescences) followed by Mărgăritar cultivar. On oil content, Mărgăritar cultivar was pointed out, followed closely by a chamomile population from Serbia. As conclusion of the obtained results, we could recommend the cultivation of Romanian cultivars because of the obtained results and for promoting the Romanian agriculture.*

Rezumat: *Invazia produselor medicinale și cosmetice naturiste aduce cu sine o altă oportunitate pentru cultivatorii mușețelului, fiind una din cele mai folosite plante medicinale în aceste domenii. Lucrarea își propune să vină în ajutorul cultivatorilor prin studierea câtorva cultivare atât românești, cât și străine de mușețel, pretabile în zona Banatului. Cercetările au scos în evidență faptul că, atât cultivarele românești, cât și cele străine au capacități ridicate de recoltă; totuși linia produsă de Agrosel a avut cea mai mare producție (903 kg/ha inflorescențe uscate), urmată de soiul Mărgăritar. Referitor la conținutul de ulei, s-a impus soiul Mărgăritar, urmat îndeaproape de o populație sârbească de mușețel. Ca urmare a rezultatelor se poate recomanda cultivarea soiurilor românești atât datorită rezultatelor obținute, cât și pentru promovarea agriculturii românești*

Key words: *chamomile, cultivars, yield, oil content*

Cuvinte cheie: *mușețel, cultivare, producție, conținut de ulei*

INTRODUCTION

The Romanian market of medicinal plants begins to be taking it seriously by many cosmetic factories. In order to supply the demand, Romania must produce yields that not only satisfy this demand but they also must have some quality rules to respect. The activity in the domain of medicinal and aromatic plants is ruled by the low no. 491/2003, and the European Union policy is based on the regulation (CE) no. 2702/1999 of the Council regarding the actions of information and promoting of agricultural products and regulation (CE) no. 2826/2000 (www.sapard.ro).

Wild chamomile is one of the most search medicinal plants of the market. It is also known under the name of German chamomile and it is considered a universal panacea, both in traditional and modern naturalist pharmacies.

By cultivation one can get a more even produce and of better quality. It is cultivate in all area in Romania, but it prefers good fertility soils.

The most valuable product for both domestic and foreign consumption is from cultivated areas. This is why wild chamomile is cultivated and improved. Through improvement, we aim at developing cultivars with high productive capacity, with lots of evenly developed inflorescences, and rich in eteric oil.

MATERIAL AND METHOD

In order to get best results we used the bi factorial method. The experience was at the Experimental Didactic Station of Banat's Agricultural and Veterinary University, Timișoara. Fertilising the crop was done evenly with $N_{15}P_{15}K_{15}$. Basic tillage was done 20-22 cm deep in the soil. Germination bed was prepared and levelled due to the very small size of the seeds. It was a bi factorial experience with next facts:

Fact A cultivars:

- A1=Margaritar (Ro)
- A2=LineAgrosel (Ro)
- A3=pop Serbia
- A4=pop Hungary

Fact B sowing time:

- B1=first decade of April (1st time)
- B2=June (2nd time)
- B3=September (3rd time)

Biological material used was the Margaritar cultivar, from the Research Institute in Fundulea, a new line from seeds company Agrosel and two foreign populations (Serbia and Hungary).

Harvesting the inflorescences was done gradually, following blooming time and duration of blooming. In the field, we made measurements with the metrical frame in order to establish density.

Qualitative experiments and amount of volatile oil were done in the specialty laboratories (O.S.P.A.).

RESULTS AND DISCUSSIONS

Table 1 shows that sowing time had more influence on yield quantity compared to the cultivars. The 3rd time led to an increase in dried inflorescence yield with 47 kg/ha compared to the 1st time.

Table 1

Dried inflorescence yield (kg/ha) obtained in Timișoara 2005-2007

Fact A: Cultivars	Fact B: sowing time (kg\ha)			Average of fact A			
	1 st time	2 nd time	3 rd time	Yield (Kg/ha)	%	Difference	Signify
Margaritar (Ro)	825	830	875	843	100	-	
LineAgrosel (Ro)	833	847	903	861	104	154	***
Serbia pop	815	822	858	832	98	-68	000
Hungary pop	798	808	824	810	96	-153	000

DL 5%= 7.04kg/ha; DL 1% = 9.39kg/ha; DL 0.1% = 12.34kg/ha.

Average of fact B

Yield (Kg/ha)	818	827	865
%	100	101	106
Difference	-	9	47
Signify		***	***

DL 5%= 3.52kg/ha; DL 1% = 4.70kg/ha; DL 0.1% = 6.17kg/ha.

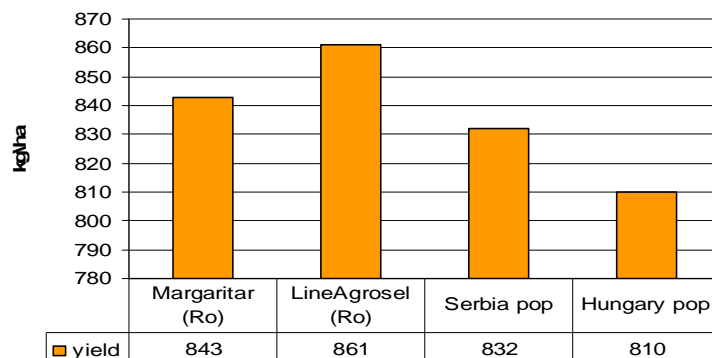


Figure1. Yield variation depending on cultivars (*synthesis 2005-2007*)

Dried inflorescence yield is distinctly significantly positive (Table 1) in LineAgrosel (Ro), with a difference of 154 kg/ha compared to the variant sowed with the Margaritar cultivar.

As for the oil content, we can observe in figure 2 that the values are very close. Anyway, the best results were 1.03 % at the Margaritar cultivar and at the population from Serbia.

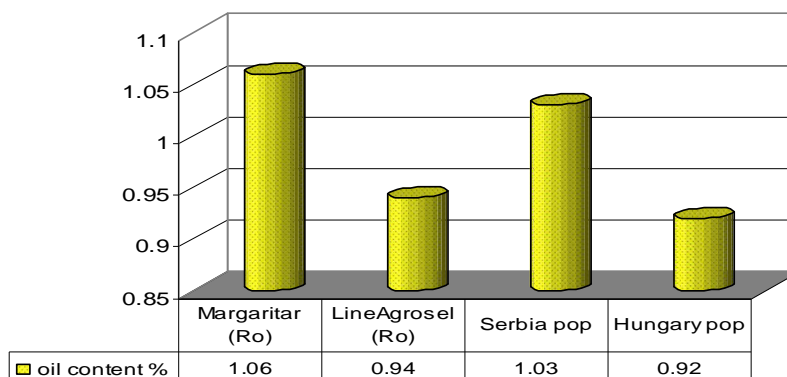


Figure2. Oil content variation depending on cultivars (*synthesis 2005-2007*)

Table 2

Cultivars:	Margaritar (Ro)	LineAgrosel (Ro)	Serbia pop	Hungary pop
X	1.06	0.94	1.03	0.92
S²	0	0	0	0
S	0.02	0.01	0.02	0.01
Sx	0.00	0.00	0.00	0.00
S%	1.98	1.06	1.94	1.09

The lowest value was registered at the Hungarian population (0.92 %). The same low content we observed on the line from Agrosel (0.94 %)

Oil yield has registered a negative significance (Table 3), but for all the densities yield value is very high and proves that inflorescence yield has best quality.

Table 3

Oil yield (kg/ha) obtained in Timișoara 2005-2006				
Cultivars	Yield Kg/ha	%	Difference Kg/ha	Signification
Margaritar (Ro)	8.93	100	-	
LineAgrosel (Ro)	8.10	91	-0.8	00
Serbia pop	8.57	96	-0.4	00
Hungary pop	7.45	83	-1.5	000

DL 5%= 0 kg/ha; DL 1% = 0 kg/ha; DL 0.1% = 1 kg/ha.

Figure 3 shows that the Margaritar cultivar led to a dried inflorescence yield of 8.93 kg/ha chamomile oil, which means a lot for naturist medicine.

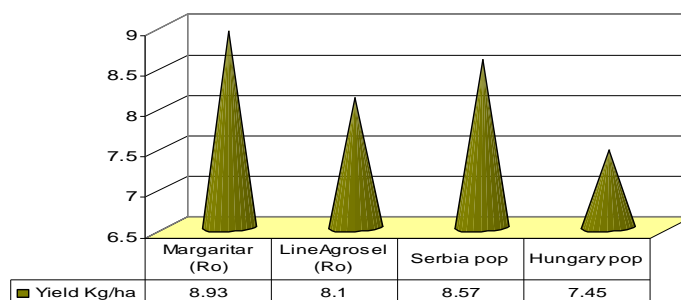


Figure 3. Oil yield variation depending on sowing density (*synthesis 2005-2006*)

The lowest results in oil yield were obtained on Margaritar cultivar (7.76 Kg/ha). A low result was obtained also on the population from Serbia: 43 kg/ha.

CONCLUSIONS

Yield capacity of the analysed cultivars was significantly influenced by the sowing time.

The quantity of the active principles is influenced by the cultivars and it is very important to take this fact in consideration for best results in oil yield.

Wild chamomile is at this moment one of the favourite medical plants and the importance of this paper is given by the significant increase of the international market demand.

As a conclusion of the obtained results, we could recommend the cultivation of Romanian cultivars because of the obtained results and for promoting Romanian agriculture.

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