RESEARCH ON THE OIL CONTENT PERCENTAGE OF SOME FLAX VARIETIES CULTIVATED IN THE WESTERN PLAIN OF ROMANIA

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RESEARCH ARTICLE

Abstract

This study analyses the oil content of some varieties of flax for oil grown in regions of the Western Plain of Romania We studied 3 varieties of flax for oil in 3 regions of the Western Plain of Romania, Inand, Bihor County, Arad, Arad County, Peciu Nou, Timişoara County: Lirina, Paltin and Simbol.

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INTRODUCTION

Flax for oil is considered an important oleaginous plant because almost every part of the plant is used (stems, seeds, the oil extracted from them and the secondary products obtained) having a commercial, food, therapeutic, industrial, fodder, agronomic, pre-processing use (SINHG et al 2011). From flax, for food, dietary or therapeutic purposes, the fully mature seeds (Semen lini) are used, as such or in the form of flour (Farina lini), the oil extracted from them (Oleum lini) or flat cakes (Placenta lini) (Bâlteanu, 2001), the recommendation of doctors and dieticians for all categories of consumers is to use it in the form of oil or powder (flour).

Flax seeds are rich in oil and protein. The seeds of flax varieties for fibre contain 30-36% oil and flax varieties for oil up to 44%, after pressing it results in 60-70 kg flat cakes rich in protein, carbohydrates and fats, which constitute a high-quality concentrated fodder in animal nutrition.

MATERIAL AND METHOD

In 2020, we studied 3 varieties of flax for oil in 3 regions of the Western Plain of Romania, Inand, Bihor County, Arad, Arad County, Peciu Nou, Timişoara County: Lirina, Paltin and Simbol. We sowed an experiment in 3 repetitions, the surface of the experimental plot being 10 m^2 harvestable, at a distance of 12.5 cm between rows, at a density of 1000 germinable grains per m^2 to determine the oil content percentage of the flax varieties.

The types of soil on which the experiments were carried out are: Inand - soft clay illuvial soil, Arad – leached chernozem soil and Peciu Nou cambic chernozem soil.

To prepare the land, a ploughing of 30 cm was carried out in the autumn of the previous year, and in the spring, we carried out a harrow pass with discs at a depth of 8-10 cm. In order to have the quality of the germinal bed before sowing, we carried out a work with the combiner.

Sowing was done at a depth of 2-3 cm with the Wintersteiger TC 2700 seed drill.

Fertilization was carried out with complex fertilizers 20.20.20, 250 kg/ha in the dose of 50.50.50. active substance, ammonium nitrate 150 kg/ha in a dose of 50.0.0 active substance and a foliar fertilization with cropmax 0.5l/ha was carried out in the vegetation.

The maintenance of the crop was carried out with dual gold EC 1.5 l/ha

The harvest was done with a combine of experiences.

RESULTS AND DISCUSSIONS

After harvesting, samples of 2 kilograms of seeds from each flax variety were taken, which were cold-pressed and then the percentage of oil content was determined.

Table 1 shows the productions/hectare and the oil content recorded in Inand, Bihor County, thus, in the Lirina variety there was obtained a production of 2220 kg/ha and an oil content of 41.2%, in the Paltin variety there was obtained a production of 1863 kg/ha and a percentage content of 42.4% with 1.2% higher than in the Lirina variety and in the Simbol variety there was a production of 2155 kg/ha with an oil content percentage of 42.7% with 1.5 % higher than Lirina and 0.3% higher than the Paltin variety.

Table 1

Productions and oil content recorded in Inand, Bihor County

No	Variety	Production/plot/ha (kg)			Productions average/ha in kg	Oil content in percentage
		R_1	R_2	R_3		
1	LIRINA	2150	2240	2270	2220	41.2%
2	PALTIN	1810	1830	1950	1863	42.4%
3	SIMBOL	2100	2070	2175	2115	42.7%

Table 2 shows the productions/hectare and the oil content recorded in Arad, Arad county, on a leached chernozem soil type, thus the Lirina variety obtained a production of 2300 kg/ha and an oil content of 41.3%, in the Paltin variety was obtained a production of 2016 kg/ha and an oil content of 42.6%, 1.3% higher than in the Lirina variety and in the Simbol variety a production of 2156 kg/ha and an oil content of 42,7% was obtained, 1.5% higher than the Lirina variety and 0.2% higher than the Paltin variety

Table 2

Table with productions and oil content recorded in Arad, county

No.	Variety	Production/plot/ha (kg)			Productions average/ha (kg)	Oil content in percentage
		R_1	R_2	R_3		
1	LIRINA	2230	2320	2350	2300	41.3%
2	PALTIN	1980	2060	2010	2016	42.6%
3	SIMBOL	2160	2090	2220	2156	42.8%

Table 3 shows the productions/hectare and the oil content of the flax varieties for oil in Peciu Nou, Timisoara county on a cambic chernozem soil type, thus the Lirina variety obtained a production of 2306 kg/ha and an oil content of 41.5%, in the Paltin variety a production of 2055 was obtained with an oil content of 42.7%, 1.2% higher than in the Lirina variety, and in the Simbol variety a production of 2223 kg/ha was obtained with an oil content of 42.9%, 1.4% higher than the Lirina variety and 0.2% higher than the Paltin variety.

Table 3

Productions and oil content recorded in Peciu Nou, Timișoara county

Crt No.	Variety	Production/plot/ha (kg)			Productions average/ha (kg)	Oil content in percentage
		R_1	R_2	R_3		
1	LIRINA	2250	2310	2360	2306	41.5%
2	PALTIN	2030	2120	2200	2055	42.7%
3	SIMBOL	2270	2190	2210	2223	42.9%

Figure 1 shows the oil content of the flax varieties on the 3 soil types. The soil on which the highest percentage of oil was obtained is the cambic chernozem soil from Peciu Nou, Timişoara county. In this location, in the Simbol variety, the oil content was 0.1% higher than that obtained on the leached chernozem type soil from Arad and 0.2% higher than the content obtained on the clay illuvial soil from Inand. In the Paltin variety, an oil content of 42.7% was obtained on cambic chernozem, 0.1% higher than on the leached chernozem soil type and 0.3% higher than on the clay illuvial soil from Inand. In the Lirina variety, the highest oil content was also obtained on the cambic chernozem soil, 41.5%, 0.2% higher than on the leached chernozem soil and 0.3% higher than on the clay illuvial soil.

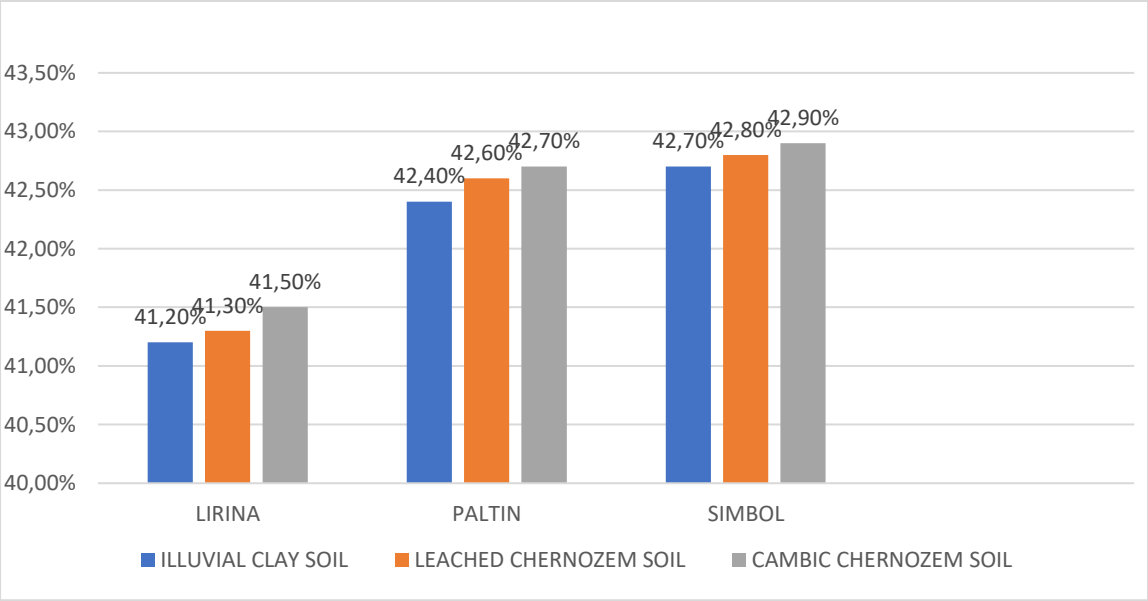

Figure 1 **The oil content of the flax varieties on the 3 types of soil**

CONCLUSIONS

The variety with the highest percentage of oil content is the Simbol variety 42.9% on cambic chernozem type soil and the variety with the lowest oil content is the Lirina variety on clay illuvial soil. The type of soil on which the highest oil content was obtained in all 3 varieties is the cambic chernozem type soil, thus in the variety Lirina 42.7%, Paltin 42.8% and Simbol 42.9%.

The clay-alluvial soil type from Inand is the one where the lowest oil percentage contents were obtained: Lirina 41.2%, Paltin 42.4% and Symbol 42.7%.

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