THE OIL CONTENT IN SAFFLOWER (*CARTHAMUS TINCTORIUS L.*) UNDER THE INFLUENCE OF SOWING

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***Abstract*:** *In this paper, the main objective was to determine the influence of sowing on oil content, several new lines of safflower obtained from the local population of Timisoara. Safflower (Carthamus tinctorius L.), as an oil plant, has been known since ancient times. It is cultivated in U.S.A., Israel, Morocco, Spain, Italy, France, Pakistan, Tunisia, India, and Australia. Safflower has been cultivated mainly for the edible oil obtained from its seeds. It is mentioned that safflower oil has wide uses in the pharmaceutical industry, due to its purgative and anti-rheumatism effects. It does not result in an increase of the cholesterol level in the blood. Safflower flowers have tonic properties in cough.Pigments of safflower flowers are particularly important because they leave no toxic residues in coloured products. Pigments are synthesised in the root where, during vegetation, they migrate towards leading tissues towards the petals.The oil is used as a remedy for rheumatic pains. Outside the fatty acid content of 32-40% and a percentage seeds contain 11-17% protein and 4-7% water. Carthamine is one of the most valuable non-toxic compounds used in the food industry or in the textiles industry.Results obtained recently in China concern the use of safflower flowers-based medicines with good effects on coronary diseases and on angina pectoris, curing 75.6% of the total patients treated.The incidence of re-occurrence of cardiac crises as well as of side-effects is rarer than in the case of nitro-glycerine-based medicines.In order to reach the goals of our research, we used 4 safflower lines obtained through individual selection from a population of Timişoara.To highlight content burrs safflower oil (Carthamus tinctorius L.) under study, organized experience bifactorial the experimental factors were: Factor A - sowing period - the era I - MARCH era II - APRIL, factor B - safflower lines, T 9, T 10, T 33, T 40 low waist. Placing field experience was made by the method of randomized blocks with plots. The experimental variants were placed in three repetitions with randomization factor B (safflower lines). Researches have shown the influence of planting dates on some elements of productivity achieved by testing new lines of safflower.*

Key words: *safflower, oils, lines, sowing.*

INTRODUCTION

Safflower (*Carthamus tinctorius L.*) is important as oil plant in Asia, North and Central America and in dry areas with poor soils. Due to its rich fruit oil: 30-35% was introduced in our country in human nutrition, dietetics and food but reducing the amount of cholesterol in the blood. The fruits and flowers are also used in medicine since they have hydrogogue purging and anticough properties.Safflower oil has anti-inflammatory , antioxidant, anticolesterolemiante , refreshing and emmenagogue (stimulates menstruation) , all with positive effects in the prevention and treatment of various diseases of the body : it prevents the onset of cardiovascular disease and heart disease , prevents obesity by reducing fat absorption in tissues and accelerating metabolic rate (including during periods of rest or sleep) , inhibition of appetite and quicker elimination of fats in the body (particularly the groin) , slows down the natural aging process , the powerful antioxidant effect , detoxifies the liver and relieves symptoms liver disease , prevents infertility by regulating menstruation and menstrual flow , reduce inflammation in the body, helping to control autoimmune disease (by lowering C-reactive protein , responsible for inflammation) regulates blood glucose levels , whereas

decreases in hemoglobin concentration glycolysis blood , improves insulin sensitivity in people with diabetes.

MATERIALS AND METHODS

Experimental field was located on a wet soil type mold bill (Gleize weak), weak decarbonated on lösoide deposits. Experience has been placed in the field after two factors method in which experimental factors were:

Factor A – sowing time
- 1st time ***MARCH***
- 2nd time ***MAY***

Factor B – safflower lines
- T 9, T 10, T 33, T 40 short.

Settlement field experience was the method blocks with plots randomized. Experimental variants were placed in three repetitions with randomisation factor B (safflower lines). Production results were calculated and interpreted by analysis of variance method and the biometric features were calculated and interpreted by the method of variation of the string. Except when sowing which was established in factor experienced safflower technology applied to culture was the high culture specific. Plant prior to culture was safflower winter wheat. Fertilization culture was made using complex fertilizers such N15P15K15 the amount of 450 kg / ha complex which meant 70 kg / ha to of each N, P and K. Basic plowing to 20-22 cm depth was performed. Germinative bed was processed and uniform through the combinatorial work in the fall. In the spring two-three days before sowing, to work with combinatorial to break the crust and destroying weeds east. In the first decade of March, the distance between rows of 50cm was used. During the growing season were carried out density correction in turn. The work was performed when plants reached the 2-5 leaf stage plants were left each other at a distance of 8-10 cm.

RESULTS AND DISCUSSION

Oil yields were obtained by harvesting the two epochs. Most oil production was recorded at age I. Calculation and interpretation of the result was done by analysis of variance method (N. Săulescu 1967). The oil content in safflower achenes obtained from the experimental field of Timisoara, under the influence seeding is shown in Table 1.

Table 1.

The oil content of safflower few lines obtained under the influence of sowing time in Timisoara

Factor A Sowing time	Factor B Safflower lines				Factor A Medium sowing time
	T.9	T.10	T.33	T.40 short size	
a1 martie	31,74	42,63	28,41	29,37	33,03
a2 aprilie	31,29	40,63	28,22	28,74	32,22

Averages oil content factor B lines

Average content%	Lines			
	T.9	T.10	T.33	T.40. short size
	31,51	41,63	28,31	29,05

Analyzing the average oil content is noted that in most lines of safflower oil content reduces the extent that late sowing. It is worth noting that the lines with the highest oil content in achenes are reduced from 33.03 % in safflower sown in March to 32.22 % in safflower seed in April. T10 line by sowing in March achene oil content average is 42.63 %. April sowing the oil content is reduced to 40.63 % (a decrease of 2%).The oil obtained from safflower lines shows that the best achene oil content was obtained from line T10 T9 41.63 % followed by 31.51 % from the line , the line T40 recorded content only 29.05 % . The conclusion to be drawn is that the matter safflower cultivation, sowing delay not only reduces drastically achene production and oil content in them. This is confirmed by the results obtained in the experimental cycle.

CONCLUSIONS

Sowing time given by the difference of climatic factors during growth phases distinguished in turn lead to changes in oil content.
What is found in the analysis of the results is that the oil content of safflower achenes with delayed sowing reduced.
In conclusion safflower should be planted in the first stage, and then will not be affected either oil production or content.

BIBLIOGRAPHY

1. BĂTULESCU, C., Cercetări privind valoarea unor populaţii şi soiuri de şofrănel (*Carthamus tinctorius L.*) ca material iniţiat de ameliorare. Teză de doctorat. Inst.Ag. „I.I.de la Brad" Iaşi, 1988
2. BÎLTEANU, GH., Fitotehnie, Editura ceres, Bucureşti, 1998
3. BÎLTEANU, GH., Fitotehnie volumul II, Editura ceres, Bucureşti, 2001
4. BORCEAN, I., TABĂRĂ, V., DAVID, GH., BORCEAN EUGENIA., ŢĂRĂU, D., BORCEAN, A., Zonarea cultivarea şi protecţia plantelor de câmp în Banat, Editura Mirton, Timişoara, 1996
5. SĂULESCU, N.,A., SĂULESCU, N.,N., 1967 - Câmpul de experienţă, Ediţia aII-a.Editura Agro-Silvică Bucureşti,
6. TABĂRĂ, V., 2005 - Fitotehnie, volumul I, Plante tehnice oleaginoase şi textile, Editura Brumar, Timişoara,
7. IOANA MARIA MATEAŞ – „Cercetări privind potenţialul de producţie al unor soiuri şi linii noi de şofrănel (*Carthamus tinctorius* L.)" – Teză de doctorat, Timişoara 2010.