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Industrial Hemp (Cannabis sativa L.) In Mediterranean Environment: Propagation and Agronomical Aspects

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Introduction

The cultivation is becoming an interesting opportunity for farmers due to its multifunctionality (Ranalli et al., 2020). Considering the recent development of cultivation, agronomic management is determining for obtaining good production of biomass and raw products.

The present note reports some activities aimed at the propagation and the evaluation of the effect of different agro techniques on the cultivation of oilseed hemp in Apulia region.

Materials and Methods

Propagation. From seed of Fedora 17 and Futura 75 varieties a propagation experiment was realized, using different substrate for multiplication and rooting of hemp.

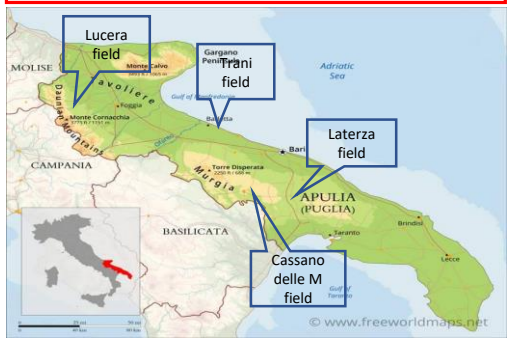
Field Experimens. On farm experiments were carried out in 2019 in different places of Apulia Regions

Following variables were adopted: variety: Fedora 17 and Futura 75 , density: using 2 different distance between rows, 32 and 48 cm (200 seeds m-2)

Sowing was realised between 10th and 25th of May 2019.

Harvest was effected in two phases:

- flowering phase for active compounds production;
- full seed ripening phase for seed production.

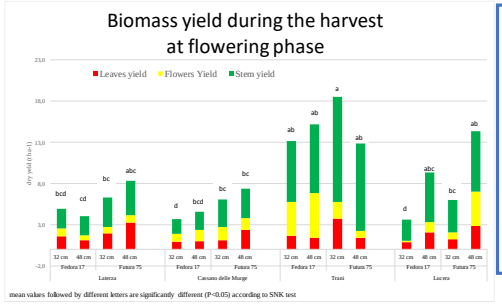


Propagation. Both Futura and Fedora varieties showed very suitable to the in vitro culture, without significant differences of growing parameters (Tab. 1). Between the nutrient media tested, BM resulted most effective for the three parameters measured. For rooting induction, BM confirmed the best one. The rooted shoots, transferred to a conditioned greenhouse, showed a survival rate of 80%.

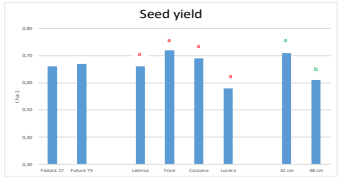
Effect of nutrient media and metabolite (MT) concentration on the growth and multiplication of Futura 75 and Fedora 17 shoots 21 days after beginning of multiplication stage

Variable	Variety		Nutrient medium		MT concentration	
	Futura 75	Fedora 17	BM	MS	0.65	0.50
Lenght (cm)	2.52 a	2.81 a	3.05 a	2.27 b	2.45 b	2.88 a
MTI (n)	2.35 a	2.09 a	2.37 a	2.08 b	2.23 a	2.21 a
MMI (n)	3.28 a	3.38 a	3.71 a	2.94 b	3.09 b	3.57 a

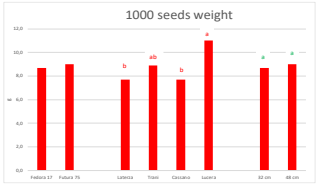
Test SNKs 0.01, MTI: Mean Tillering Index; MMI:Mean Multiplication Index; BM: Basal Medium; MS: Murashige e Skoog



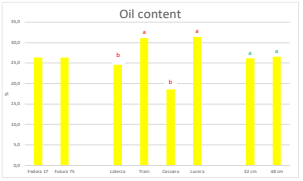
Harvest at flowering phase. Biomass yield during this phase was in average 8.5 t ha^{-1}, whit high variability between the locations. Considering the varieties, in average Futura 75 yielded 10.0 tha^{-1} respect to Fedora 75 (10 tha^{-1}) of dry matter. Significative the influence of inter row distance, showing, in average, 9.2 tha^{-1} in the 48 cm between rows, respect to 7.4 tha^{-1} in 32 cm between rows.



Considering the seed production, no difference was registered between the varieties, while locations and sowing system presented differences, with higher yield in the field of Trani, 0.72 t ha-1, and 0.71 t ha-1 in the 32 cm inter-row sowing, respect to 0.61 t ha-1 in the 48 cm inter row



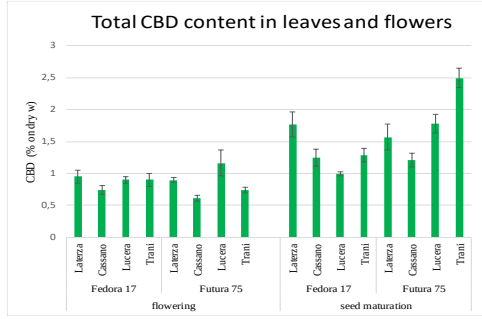
1000 seeds weight presented wider differences between location.



The better seed weight influenced positively the oil content.

Conclusions

The results reported suggest the possibility that hemp, in apulian environment, could be cultivated both for biomass production, for extraction of CBD, active compound used for several medical destination, and seed productions, interesting in food and pharmaceutical use. Additional studies should focus on the varieties assessment, to evaluate more adaptable genotype to our environment, and other agronomical inputs (nutrition, irrigation)



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