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INFLUENCE OF MYCORRHIZAL FUNGI ON SATUREJA MONTANA L. GROWN IN CHERNOZEM AND ARENOSOL

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INTRODUCTION

Winter savory *(Satureja montana* L.) is a perennial plant species belonging to *Lamiaceae* family. It naturally grows in the sub-Mediterranean area. Leaves and stems of plant are used fresh and dry as a spice and in traditional medicine as tonics, carminative, astringent and expectorant. It's essential oil is used in food and in perfume industry.

Glomus mosseae and *G. intraradices* are mycorrhizal fungi known for improving the phosphorus nutrition of plants grown in soils with low plant-available phosphorus and enhancing plant growth and yield of crop plants.

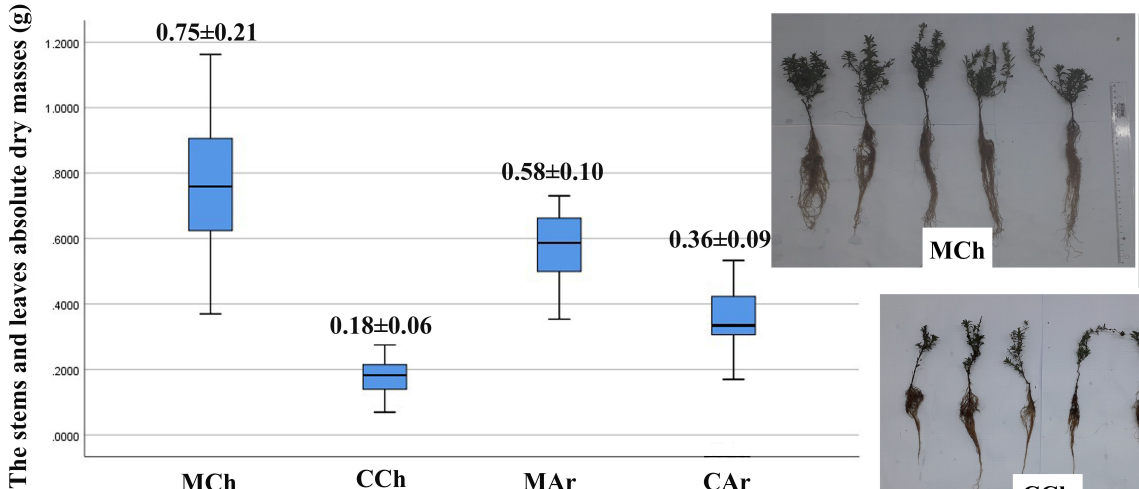
AIM

The aim was to investigate the the effects of mycorrhizal fungi (combination of *G. mosseae* and *G. intraradices*) on growth and development of *Satureja montana* L. in a pot experiment in field conditions. Plants were grown in low carbonate Chernozem with high clay content and typical Arenosol with low plant-available phosphorus determined in both soil types.

MATERIAL AND METHODS

The winter savory was vegetatively propagated by softwood cuttings. Rooted cuttings were transplanted into 1.5 L plastic pots (one plant per pot) filled with low carbonate Chernozem with high clay content and typical Arenosol (Table 1) taken from the plow layer of the soils in a disturbed condition. The experiment was set in a split-plot design with 4 replications. The main plots were soil types, while sub-plots were 2 treatments (inoculated and non-inoculated plants) with 6 pots in a random arrangement in each repetition. Plants were watered regularly with an installed drip irrigation system and weeds were regularly removed. After 90 days, non-inoculated and inoculated plants were harvested and the stems and leaves absolute dry masses were determined.

RESULTS



Treatments-MCh(mycorrhiza in Chernozem); CCh(Control in Chernozem); MAr(mycorrhiza in Arenosol); CAr(Control in Arenosol).

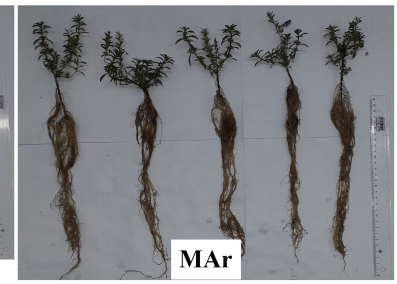


Table 1

Soil type	pH KCl	pH H_2O	$CaCO_3$ %	Humus content %	N %	P_2O_5 mg/100g	K_2O mg/100g	Mechanical analysis % Coarse sand 2-0,2 mm	Fine sand 0,2-0,02 mm	Silt 0,02-0,002 mm	Clay <0,002 mm	Total sand %	Silt + Clay %
Chernozem	6,80	7,49	0,98	2,82	0,210	4,93	33,60	0,33	38,11	24,36	37,20	38,44	61,56
Arenosol	8,26	8,85	20,64	1,22	0,029	3,04	7,3	39.56	60.12	0.28	0.04	99.68	0,32

DISCUSSION AND CONCLUSION

Inoculated plants in both soil types had higher stems and leaves absolute dry masses compared to non-inoculated plants. Results indicate that Arenosol could be a potentially suitable soil type for cultivation of this medicinal plant species since the growth of pot winter savory plants in Arenosol is proven to be better concerning non-inoculated plants in Chernozem.

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