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IN VITRO GROWTH AND DEVELOPMENT OF THREE MEDICINAL AND AROMATIC PLANTS (*Ocimum basilicum* L., *Lavandula angustifolia* Mill. and *Salvia officinalis* L.) UNDER THE INFLUENCE OF THE NUTRIENT MEDIUM COMPOSITION

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Abstract

The interest in applying techniques for the rapid and large-scale propagation of medicinal and aromatic plants has increased significantly in recent years. During the present study the effect of the culture medium composition on the growth and development of basil, lavender and sage microplants was monitored.

• Introduction

The use of medicinal and aromatic plants is increasing worldwide. *In vitro* micropropagation is an efficient method for the rapid multiplication of species for which achieving a high level of progeny uniformity is essential. The speed of tissue culture techniques can be advantageous for ensuring a continuous supply of plantlets for domestic cultivation and for supporting breeding programmes of medicinal and aromatic plants.

• Material and method

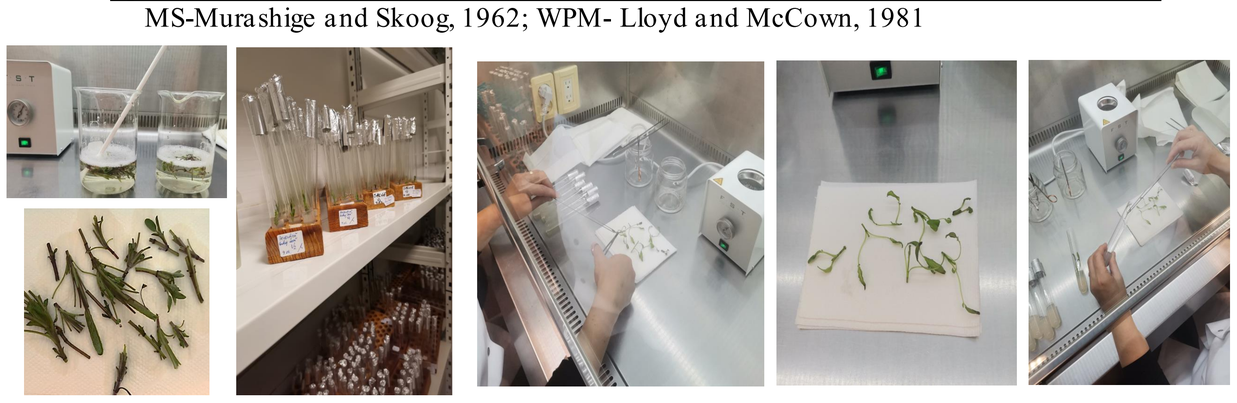
Plants and seeds from the "in vivo" collection of NIRDPSB Brasov (basil-left; lavender-middle; sage-right)

➢ For the initiation of *in vitro* cultures, seeds were surface sterilized with a solution of sodium hypochlorite 1% for 10 minutes, followed by 1 minute in a solution of 75% ethanol.

Table 1. Composition of the two medium variants for *in vitro* cultivation of basil, lavander and sage microplants

V1 Murashige-Skoog (MS)		V2 Woody Plant Medium (WPM)	
Components	Amount/1L of medium	Components	Amount/1L of medium
MS½	2.2 g	WPM	2.46 g
Sucrose	30 g	Gibberellic acid	0.25 mg
Agar	9 g	6-benzylaminopurine (BAP)	1 mg
Idole-3-butyric acid (IBA)	1 mg	Activated charcoal	0.5 g
		Ascorbic acid	20 mg
		Sucrose	30 g
		Agar	9 g
pH: 5.8			

MS-Murashige and Skoog, 1962; WPM- Lloyd and McCown, 1981



• Results and discussions

Table 2. Influence of species x culture medium interaction on shoot length after 10 weeks of *in vitro* culture

Species	Microshoots length (cm)			
	MS½		WPM	
	Microshoot length (cm)	Diff./Sign.	Microshoot length (cm)	Diff./Sign.
Basil	3.82	-1.63	8.86	1.60
Lavender	5.38	-0.08	8.53	1.28
Sage (Ct)	5.46	-	7.26	-

LSD 5%: 2.80; LSD 1%: 4.07; LSD 0.1%: 6.10

Table 3. Influence of species x culture medium interaction on root number after 10 weeks of *in vitro* culture

Species	Root number			
	MS½		WPM	
	Root number	Diff./Sign.	Root number	Diff./Sign.
Basil	2.67	1.22	5.33	2.22**
Lavender	11.56	10.11***	4.44	1.33*
Sage (Ct)	1.44	-	3.11	-

LSD 5%: 1.32; LSD 1%: 1.92; LSD 0.1%: 2.87

Table 4. Influence of species x culture medium interaction on root length (cm) after 10 weeks of *in vitro* culture

Species	Root length (cm)			
	MS½		WPM	
	Root length (cm)	Diff./Sign.	Root length (cm)	Diff./Sign.
Basil	2.17	0.06	7.78	4.72***
Lavender	3.44	1.33*	6.61	3.56***
Sage (Ct)	2.11	-	3.06	-

LSD 5%: 1.05; LSD 1%: 1.53; LSD 0.1%: 2.30

• Conclusions

- The seeds constituted a viable source of explants for the micropropagation of the three species of medicinal and aromatic plants (*Ocimum basilicum* L., *Lavandula angustifolia* Mill. and *Salvia officinalis* L.).
- Seeds were germinated on MS medium supplemented with 3% sucrose and 0.1 mg/l gibberellic acid.
- The obtained microplants were used as a source of explants.
- The results obtained after 10 weeks from the initiation of the *in vitro* cultures highlighted the WPM medium, which led to the best results in terms of shoot and root length.
- These aspects are of notable importance in the process of micropropagation of plant species.

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