THE INFLUENCE OF CULTURE'S MEDIUM ON QUINCE EXPLANTS CALLUS

INFLUENȚA MEDIULUI DE CULTURĂ ASUPRA CALUSĂRII EXPLANTELOR DE GUTUI

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Abstract. *To study the influence of culture mediums on quince (Cydonia oblonga Mill.) explants callus (taken from the cultivars: : „Moldoveneşti", „Aurii", „Aromate" and the rootstocks: „Tip A" and „BN 70") were tested four mediums: Murashige-Skoog , Fossard , Lepoivre , Woody Plant Medium; there were aded: dextrose (40 g/l), agar (10 g/L), IBA (0,1 ml/L), AG_3 (1 ml/L), Na Fe EDTA (3,2 ml/L). For quince, the favourable medium to develop the callus Lepoivre (23,3 %). The influence of Woody Plant Medium was revealed by the inhibition callus forming (0 %). The rootstock „BN 70" wasn't form callus on all the mediums.*

Rezunat. *Pentru a studia influența mediilor de cultură asupra calusării explantelor de gutui (Cydonia oblonga Mill.) din soiurile: „Moldoveneşti", „Aurii" si „Aromate" şi portaltoii: „Tip A" şi „BN 70" au fost testate patru medii: Murashige-Skoog , Fossard , Lepoivre , Woody Plant Medium cărora li s-au adiționat: dextroză (40 g/l), agar (10 g/L), IBA (0,1 ml/L), AG_3 (1 ml/L), Na Fe EDTA (3,2 ml/L). Pentru gutui mediul favorabil formării calusului este Lepoivre (23,3 %). Influența mediului Woody Plant Medium s-a manifestat prin inhibarea formării de calus (0 %). Portaltoiul „BN 70" nu a calusat pe niciunul dintre medii.*

MATERIALS AND METHODS

The quince and pear planting material production didn't satisfy the cultivator's expectations, neither before or after 1989.

The necessity to modernize the planting material production technologies of the two species, at present requests level, is determined by many other considerations such as:

- increasing the tree's density in field-grown trees and transition to intensive system culture, in which the selections of new rootstocks (vegetative), creation and introduction of new cultivars, the modernization of tree's conduct and carving allow to catch a sight of a new **„**era**"** in the two species culture, of course, this being conditioned by the rapid providing of more and more quantity of planting material.

- contributions to fast replacement of uneconomical sorts from the old field-grown trees and introduction of new middle-little vigour pear's cultivar, with fast fruit - bearing, that have compatibility with quince and tolerance to fire blight.

According to the national and international researches carried out until recently with regard to branches and meristems prelevation epoch which lead to conclusion that the optimum period is vegetative pause, we initiated the experiment between 11-25 November 2005.

The branches sterilization was achieved by immersing them in ethylic alcohol for 10 min, succeeded by their maintenance in Ca hypochlorite (6%) for 20 minutes.

The biological material was then rinsed for three times in bidistileted water and kept into the last water until the prelevation. For initiating the culture the terminal and lateral meristems were used (meristematic dom surrounded by two to three leaf initials); they are able to generate little plants in vitro.

After inoculation the explants were passed into the growing chamber at 24^0 C and a photoperiod of 16 h illumination and 8 h obscurity.

RESULTS AND DISCUSSIONS

The results on this paper include the phases of initiation and differentiation. The starting phase of experiment: because the based mediums (Murashige-Skoog , Fossard , Lepoivre , Woody Plant Medium) contain only macro, microelements and vitamins (table 1), there were aded dextrose = 40 g/L; agar = 10 g/L; IBA = 0,1 ml/L; AG_3 = 1 ml/L; Na Fe EDTA = 3,2 ml/L. pH medium was between 5,5-5,7.

Table 1

Culture mediums

	Murashige&Skoog (1962) mg/l	**Lepoivre (1977) mg/l**	**Fossard (1977) mg/l**	**Woody Plant Medium (1981) mg/l**
NH_4NO_3	1650	400	800	400
KNO_3	1900	1800	1011	-
$CaCl_2*2H_2O$	440	-	330	96
$MgSO_4*7H_2O$	370	360	370	370
KH_2PO_4	170	270	-	170
K_2SO_4	-	-	-	990
$Ca(NO_3)_2*4H_2O$	-	1200	-	556
NaH_2PO_4	-	-	138	-
$FeSO_4*7H_2O$	27,9	-	10,7	-
$MnSO_4*4H_2O$	22,3	0,75	8,45	22,3
$ZnSO_4*7H_2O$	8,6	8,6	5,75	8,6
H_3BO_3	6,2	12,0	3,09	6,2
$CuSO_4*5H_2O$	0,025	0,025	0,024	0,25
$Na_2MoO_4*2H_20$	0,25	0,25	0,024	0,25
$CoCl_2 \cdot 6H_2O$	0,025	0,025	0,118	-
KI	0,83	0,08	0,415	-
Na_2EDTA	-	-	18,61	-

Na_2SO_4	-	-	144,99	-
Vitamins				
Inozitol	100	100	54,048	100
Tiamin HCl	0,1	0,4	0,674	1,0
Ac.nicotinic	0,5	-	2,462	0,5
PiridoxinHCl	0,5	-	0,616	0,5
Glicin	2,0	-	-	2,0
Colin	-	-	0,104	-
Biotin	-	-	0,048	-
Ca pantetonat	-	-	0,476	-
Riboflavin	-	-	0,376	-
Ac. ascorbic	-	-	0,176	-

For this phase we made the following study: the influence of culture medium on callus forming. We initiated the experiment wishing to have clean and without callus explants, knowing that the explants obtained via calus are genetical modified. The experiment was initiated between 11-25 November 2005, with all five quince and rootstock cultivars.

Table 2

Influence of culture mediums on quince explants callus

Cultivar	MS (callus/ total expl.)	F (callus/ total expl.)	L (callus/ total expl.)	WPM (callus/ total expl.)
MOLDO VENESTI	0/6	1/6	1/6	0/6
AROMA TE	0/6	0/6	2/6	0/6
AURII	0/6	0/6	3/6	0/6
BN 70	0/6	0/6	0/6	0/6
TIP A	0/6	0/6	1/6	0/6
Total	0/30	1/30	7/30	0/30
Total (%)	0	3,3	23,3	0

* At numerator – number of explants with callus
At denominator – number of explants put on the mediums.

From the table 2 results that the most favourable medium to form callus is Lepoivre (23,3 %). The „Aurii" cultivar was developed callus in percentage of 12,5 as for the rootstocks „BN 70" didn't form callus on all the mediums.

The influence of MS and WPM mediums was revealed by the inhibition callus forming (0 %).

CONCLUSIONS

Into conclusion we can affirm that the medium which develops callus for quince cultivars and rootstocks is represented by Lepoivre.

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