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REGENERATION OF Asplenium nidus-avis, Pteris ensiforme and Osmunda regalis GAMETOPHYTE'S TISSUE

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Gametophyte cultured IN VITRO regenerates only when explants are taken far from the apical notch.

However when gametophyte tissue is triturated in an Omnimixer and the slurry incubated on Knoop's or MS media, each piece of tissue regenerates a new mass of gametophyte.

This tecnique has been applied sucessfully to: Asplenium nidus-avis, Pteris ensiforme and Osmunda regalis.

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CALLUS INDUCTION AND PROLIFERATION IN THYMUS MASTICHINA EXPLANTS

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Leaf explants (5/3 mm) from Thymus mastichina were used for callus induction. Leaf segments were cultured in the dark on an MS medium supplemented with auxins (2,4D and IBA) and/or citokinins (KIN and BA) in various concentrations.

(1-10 mg/L) 2,4D or (0.1-10 mg/L) 2,4D plus (0.1-10 mg/L) KIN induced callus which did not show any latter morphogenetic response and were suitable for cell suspension establishment.

Callus proliferation and adventicious bud formation were achieved on the medium supplemented only with (1-5 mg/L) KIN. A succesful rooting treatment consisted of subculturing on a medium containing (1-10 mg/L) IBA

Browning of callus due to a high phenolic formation was the main problem after its induction. In order to avoid this problem, a rapid subculture was carried out in a medium containing reductant agents such as ascorbate or citrate at various concentrations.

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CALLUS INDUCTION AND CULTURE FROM EXPLANTS OF ERYSIMUM SCOPARIUM (BRASSICACEAE) IN A HORMONE-FREE MEDIUM.

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Calli from cotyledon, hypocotyl and radicle explants of E. scoparium (Brassicaceae) have been induced and supporting using a Murashige and Skoog medium without hormones. Differences in callus induction frequencies and morphology between explant types were observed. Histological analysis was carried out during culture and the development of vascular elements and meristematic nodules were detected. Meristematic green islands from nodules could be observed which often developed into shoot primordia and occasionally roots. Somatic embryos were also detected especially when calli were obtained from explants cultured on a medium with auxin. Habituated callus tissues from calli initiated with auxins were also produced and they presented a enhanced response to exogenous auxin that those induced without hormones.

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SOME ASPECTS OF MICROPROPAGATION IN VITRO OF CAROB (CERATONIA SILIQUA L.)

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In vitro culture of Ceratonia siliqua is rather difficult. We have tried direct meristem culture, micrografting of meristems on seedlings, as well as culture of uninode cuttings and leaf discs. The medium used was M. & S., supplemented with citokinins (B.A., 2 iP, zeatin and kinetin), in all possible combinations, with or without IAA and GA_3.
Direct meristem culture was unsuccessful; however, by micrografting we succeeded in 10-15% of the experiments. Using uninode cuttings, better results were obtained with explants from seedlings than with those from adult plants, suggesting that the juvenility is a determinant factor. This was confirmed by the results obtained with leaf discs. In all cases better results were obtained when B.A. was present in the medium.

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"IN VITRO " ESTABLISHMENT FROM SHOOTS OF PISTACIA ATLANTICA DESF.(ALMACIGO) SEEDLINGS.

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Almácigo is used as rootstock for Pistachio.Development "in vitro" of isolated shoots-coming from young mother plants and of sprouts on these after pruning-in mediums made up by several mineral salts solutions established or modified by as and exposed to light for different periods have been assessed in this work.We observed that shoots formed after pruning usually respond better. Shoots develop better when are cultured in a modified Quoirin and Lepoivre macroelements solution,which contain a double amount of NH_4NO_3 and 425 mg/l $NaNO_3$; MS microelements.10^{-6}M BA.$5x10^{-8}$M ANA,0.4mg/l $B_1$and B_6 vitamins.100 mg/l myo-inositol,2%sucrose,0.8%agar and exposed at continuous light.In these conditions we achieved more than 60 % of shoots with vigorous stems,having long internodes and leaves with a normal morphology.

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IN VITRO" CULTURE OF PISTACIA ATLANTICA DESF. SEEDLINGS ROOTSTOCKS:INFLUENCE OF MONOPOTASIC PHOSPHATE AND MAGNESIUM SULPHATE CONCENTRATIONS ON THE SHOOTS DEVELOPMENT.

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A modification of Quoirin and Lepoivre macroelements solution for addition Na^+ ions and increase of NH_4^+ions,was more effective for the "in vitro" development of Almácigo shoots.This solution has high amounts(mg/l)in KH_2PO_4(2700)and $MgSO_4$(3600). To know the optimum dose,were changed the quantities of these salts over and below,alone or together (always maintaining an ionic relation-mEq/l- between $H_2PO_4^-/Mg^{2+}$1/1.47;SO_4^{2-}/Mg^{2+}1/1) from the original solution.The results show that the increase or reduction of the concentration of said salts compared to that of the control solution can have drastic effects on the shoots' growth if the same relation is not maintained between the ions components as in the original solution.