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Seed Germination and In vitro Propagation of Sucupira Branca [*Pterodon pubescens (Benth.) Benth.*], a Medicinal Plant. J.E.B.P.PINTO; M.C.F.Coelho; O.A.Lameira; E.J.A.Santiago and F.G.Silva. Laboratory Tissue Culture, UFLA Cx.P.37, Lavras, MG, 37200-000. email: jeduardo@ufla.br

Pterodon pubescens (Benth.) Benth. is a essence native to Brazilian cerrados, reaching up to 16 meters in height. The oil of fruit is very enjoyed in folk medicine in sore and rheumatic infections, it protects from cercaria infections. The wood posses high natural resistence to rotting, being regarded as one of the most resistent woods for railroad sleepers. The objectives of the present work were to identify the best in vitro and ex vitro germination conditions for the seed, embryo and embryonic axes of the seedlings development, in addition to determinating a methodology for in vitro multiplication. Experiments were conducted aiming at the achievement of in vitro germination by means of the use of modified MS basic medium, in liquid medium, different gelifyings, caps and light conditions the establishment of nodal segments were studied by employing the MS and WPM basic medium. In the multi-sprouting experiment, four different combined concentrations of ANA and BAP were tested. The best type of cap for embryo germination was the one of aluminum paper mould together with liquid medium the nodal segments were best established in WPM medium. Up to 7,5 shoots/segment were obtained, with the nodal segment, inoculated at the horizontal position in the MS culture medium with half the concentration of salts, supplemented with 0,5 mM BAP.

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Multiplication Strategies for *Hypericum foliosum* Aiton, an Endemic Azorean Species. Graciete Belo Maciel and MONICA MOURA. Departamento de Biologia, Universidade dos Açores. Apartado 1422, 9501-801 Ponta Delgada (Açores) Codex, Portugal. Email: maciel@notes.uac.pt, moura@notes.uac.pt

Hypericum foliosum Aiton, is a beautiful Azorean endemic species whose populations currently yield a low number of individuals in many of the archipelago islands. In order to find an effective *ex situ* multiplication strategy for this plant several studies were carried out. During a 3 years span the germination capacity of its seeds was tested. The essays took place under a continuous temperature of 15 °C and 10–20 °C alternate, for a period of 8 hours light and total darkness. In alternate temperature tests the light period was made to coincide with the highest temperature. The species showed a positive photosensitivity and germination percentage of 67% under a continuous 15 °C temperature. A short dormancy was detected in seeds with 3 months of conservation. At the end of 15 and 25 months of storage new essays were done and the results obtained showed a progressive reduction in the plant's germination capacity. The first micropropagation studies carried out revealed that the best medium to cultivate *Hypericum foliosum*'s single node cuttings was Côrte & Mendonça (1985), supplemented with 0.4 μM N6-benzyladenine (BA) and 2.6 μM a-naphthaleneacetic acid (NAA) + 4.4 μM BA, in the initiation stage and 0.4 μM BA, in the elongation stage. Regarding culture multiplication, 0.4 μM BA, in the initiation stage and 2.6 μM NAA + 4.4 μM BA, in the initiation and elongation stages, proved to be the most efficient concentrations. The acclimatization stage was also successfully performed in Jiffy 7® pellets. To fine tune the composition of the culture medium, several tests were then run using different quantities of sucrose. Namely, 5, 10, 20, 30 and 40 g/l. A higher differentiation and multiplication rate was achieved in a 20 g/l concentration, which also produced longer shoots and the highest percentage of rooting. The pH influence in *Hypericum* cultures' performance was also tested using 3 different values: 4.8, 5.8 and 6.8. Better differentiation and elongation values were achieved in pH=5.8, as also was the percentage of rooted explants. Regarding multiplication, 5.8 also produced the best results.

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Chemically Induced Resistance of *Carica Papaya* against *Phytophthora Palmivora*. Y. JUDY ZHU[1], Maureen Fitch[2], Stephen Ferreira[3] and Paul Moore[2]. [1]Hawaii Agriculture Research Center, Aiea, HI 98701, [2]USDA, ARS, Aiea, HI 96701, [3]University of Hawaii, Honolulu, HI 96822. E-mail: jzhu@harc-hspa.com

Acquired resistance is an inducible defense mechanism exhibited by many plants that provides protection against a broad range of pathogens. Systemic acquired resistance (SAR) has been induced by treatment with chemical substances such as salicylic acid (SA) and benzo(1,2,3)thiodizaole-7-carbothioic acid S-methyl ester (BTH) in both dicotyledenous and moncotyledonous plants. We are exploring the possibility of using BTH-induced SAR as an alternative approach for control of the root rot and fruit rot diseases caused by *Phytophthora palmivora*. Here we report that in tropical fruit papaya, *Carica papaya*, chemical treatments with SA and BTH can induce SAR against *Phytophthora palmivora*. Young papaya plants pretreated with 15 mM SA showed 35–50% fewer lesions and smaller infected areas two weeks after inoculation with *P. palmivora* than similar plants without SA treatment. BTH increased papaya plant resistance to *P. palmivora* at concentration as low as 1.0 mM. BTH at this concentration exhibited slight toxicity to the papaya seedlings but gave complete protection against *P. palmivora* whereas control plants treated with water showed over 70% mortality 5 days after inoculation. Studies on the effectiveness of a range of concentrations of BTH will be reported. Enzyme activities of the pathogenesis-related proteins chitinase and beta-1,3-glucanase increased more than six-fold following BTH treatment indicating that BTH is acting as a chemical inducer of SAR in papaya.

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One-step, *in vitro* Acclimatization of Carnation using a Mist Reactor. M.J. CORRELL and P.J. Weathers. Dept. of Biology/Biotechnology, Worcester Polytechnic Institute, Worcester, MA 01609. E-mail: mcorrell@wpi.edu

Mist reactors offer a variety of benefits when compared to conventional micropropagation techniques: the gas phase surrounding the plant tissue can be readily manipulated, large quantities of plants can be cultured in a single vessel, the liquid medium can be regulated throughout plant development, and they can be easily automated. An acoustic window mist reactor was used for *in vitro* culturing and subsequent acclimatization of *Dianthus caryophyllus* L. Plant nodes were cultured for five weeks in either the mist reactor or GA7 culture boxes (Magenta™), containing or lacking a 0.2 <FONT FACE=Symbol>m</FONT>m filter-vent in the lid. For plants grown in the reactor, the medium feed rate or misting cycle increased over the culturing period from 2 to 4 to 10 minutes of misting on per hour, for weeks 1, 2, and 3–5, respectively. In addition, the last week of *in vitro* culture within the reactor included a stepwise reduction in relative humidity from 99% to 70% Rh using dried, ambient air to flush the headspace surrounding plant tissues. Plants from both the reactor and corresponding GA7 boxes were transferred to the greenhouse for five weeks without additional acclimatization. Plant survival was highest for plants grown in the mist reactor (89% survival) compared to plants grown in either GA7 boxes (50% survival) or GA7 boxes with filter-vents (81% survival). Survival correlated with low levels of hyperhydration. These results show that by careful manipulation of the environment, one-step acclimatization can be achieved using a mist bioreactor.