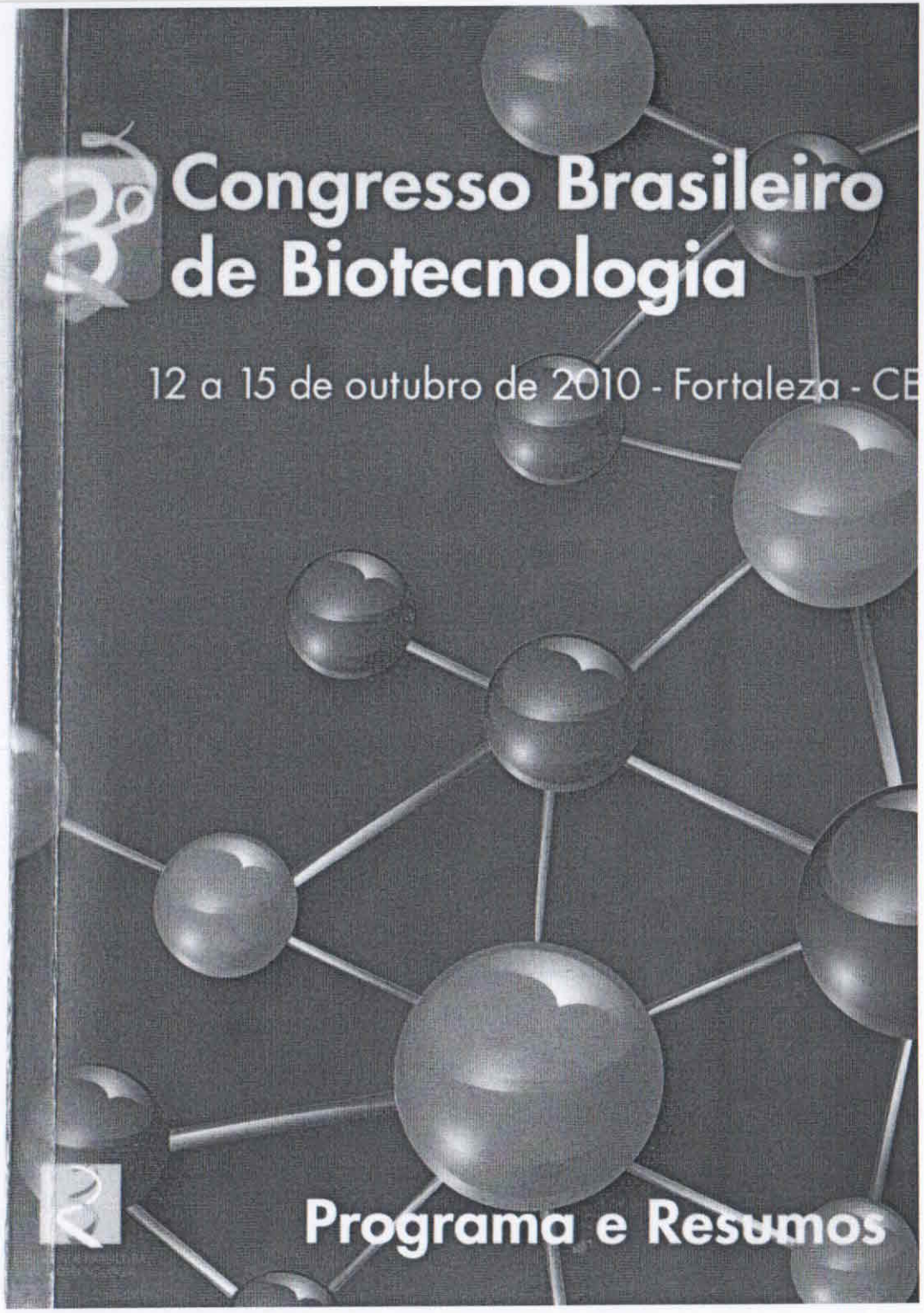
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409 - ENHANCED TOLERANCE TO ABIOTIC STRESS IN TRANSGENIC TOBACCO BY OVEREXPRESSION OF GENE CPPSY

[1]**Luciana C. Cidade**, [2]Amanda F. da S. Mendes, [3]Walter dos S. Soares Filho, [4]Marcio G. C. Costa

1,2- Pos- Graduation student – Universidade Estadual de Santa Cruz , Ilhéus, Bahia, Brazil; **3-** Research scientist - Empresa Brasileira de Pesquisa Agropecuária, Centro Nacional de Pesquisa de Mandioca e Fruticultura Tropical, Equipe de Fruticultura, Bahia, Brazil; **4-** Researcher, teacher – Universidade Estadual de Santa Cruz , Ilhéus, Bahia, Brazil, e-mail presenting/corresponding author: lccidade@yahoo.com.br

The enzyme phytoene synthase (PSY) catalyzes the first specific reaction and flow control of the biosynthetic pathway of carotenoids and are therefore involved in the biosynthesis of ABA. Recent studies have confirmed the important role of PSY gene in conferring abiotic stress tolerance in plants. Thus, the objective of the present study was to analyze the functionality of CpPSY gene, derived from *Citrus paradisi* Macf., in conferring tolerance to salt and drought stress. For this purpose, tobacco plants were transformed by *Agrobacterium tumefaciens* containing the plasmid pCAMBIA 2301 CitPSY. Transgenic plants were successfully obtained and the molecular characterization via *Southern blot* analysis demonstrated the presence of one to two copies of the inserted T-DNA in different transgenic lines. This result was confirmed by analyzing the segregation of kanamycin resistance in the T1 generation, where the transgenic lines showed segregation patterns of 3:1 and 15:1, indicating the insertion of T-DNAs in one or two loci, respectively. Testing of sensitivity of the T1 generation by d stress (PEG and mannitol) and salt (NaCl) revealed significant differences in root length and biomass of some transgenic lines compared to non-transformed control plants. These results demonstrate that the gene CpPSY is able to induce tolerance to abiotic stress in transgenic plants, which can be considered as a promising target for increasing tolerance drought and salinity in crops.

410 - A STRATEGY TO REDUCE THE CARDIOTOXICITY OF DOXORUBICIN (DOX) WITHOUT AFFECTING ITS ANTINEOPLASTIC ACTIVITY

Junqueira-Rocha, V.C.[1], Ferreira T.A.[2], Aragão-França L.S.[1], Dutra A.A.N.[3], Pontes de Carvalho L.C.[3]

1- Pos-graduation student- Instituto Gonçalo Moniz- Fiocruz-BA- Brazil; **2-** Graduating student- EBMSP/ Fiocruz-BA- Brazil; **3-** Research scientist - Fiocruz-BA- Brazil; e-mail presenting/corresponding author:vivvi_junqueira@yahoo.com.br

Doxorubicin is a chemotherapeutic of the anthracycline class widely used in the treatment of solid and haematopoietic malignancies. Despite their efficacy in the antineoplastic treatment, cardiotoxicity is the main limiting factor to the use of Dox at the medical clinic. Although doxorubicin-induced cardiac damage appears to be multifactorial, one of the most prevalent assumptions is that cellular damage is induced by free radicals, and there is much evidence pointing to cardiac mitochondria as primary targets of the toxicity of Dox. This oxidative injury may be potentially limited by the use of antioxidants. In this study, the protective efficacy of lipoic acid, a universal antioxidant, on Dox-induced cardiotoxicity was evaluated in mice *in vivo*, and its interference in anticancer effects was investigated *in vitro* in mouse B16F10 melanoma cells. The Dox-induced toxicity by a single intraperitoneal (i.p.) injection of 20 mg/kg body weight was verified by a significant reduction in body weight after five days ($p<0.001$), increased serum activity of CK-NAC and CK-MB after 48 hours ($p<0.05$) and increase in MLDA levels after 24 hours in cardiac mitochondria ($p<0.05$) and cardiac tissue ($p<0.01$). Pretreatment with lipoic acid (200 mg/kg body weight, i.p., for two days, 72 hours prior to Dox) significantly reduced the lipid peroxidation of cardiac mitochondria, suggesting the antioxidant potential of lipoic acid in reducing the cardiotoxicity induced by Dox. In addition, lipoic acid did not significantly affect the antitumor activity of Dox on B16F10 melanoma cells in vitro.

411 - COMPARISON OF FPASE AND XYLANASE PRODUCTION BETWEEN FUNGI ISOLATED FROM AMAZON REGION AND *ASPERGILLUS NIGER* (F12)

[1]Rosangela Donizete Perpetua Buzon Pirota, [2]Mariana Tonelotto, [3]Priscila da Silva Delabona, [4]Igor Polikarpov, [5]Cristiane Sanchez Farinas

1- Masters student - UFSCar / Biotechnology, SP, Brazil; **2-** doctoral student - UFSCar / Biotechnology, SP, Brazil; **3-** master student - UFSCar / Biotechnology, SP, Brazil; **4-** USP professor and researcher at the Institute Physics of São Carlos, Brazil, **5-** research scientist - Embrapa Agricultural Instrumentation; e-mail presenting / corresponding author: rosa_angelapirota@hotmail.com

The selection of producers fungus cellulases and xylanases are a possible strategies for obtention of enzymes necessary to hidrolyze the lignocellulosic material and therewith contribute for the viability of cellulosic ethanol production. Ethanol produced from renewable biomass is attracting attention as an alternative energy source. Among the various agricultural wastes produced from Brazil, the wheat bran is a lignocellulosic biomass abundance, cheapness and huge potential availability. The aim of this study was to evaluate and compare the efficiency of enzymatic production between the fungi isolated of Amazon region and the strain *A. niger* (F12) by solid-state fermentation (SSF). SSF was carried out using wheat bran with substrate and 6 strains of mesophilics fungi, being 5 of these isolates from region Amazon (P27C3, P28P11, *Aspergillus fumigatus* (P40M2), P45C3 and *Aspergillus niger* (P47C3)) and 1 strain of *A. niger* (F12) for comparison ends. FPase and xylanase production occurred at a temperature of 50°C for 240h. The results showed that the peak of xylanase production of the fungi P27C3 was of 56.52 U/g (24h), of the P28P11 was of 60.62 U/g (24h), of the P40M2 was of 38.85 U/g (24h), P45C3 58.93 U/g (24h), of the P47C3 was of 62.49 U/g (24h) and of the *A. niger* (F12) was of 150 U/g in 216h. Already the peak of FPase production of the P27C3 was of 8.45 U/g (24h), of the P28P11 was of 9.56 U/g (24h), of the P40M2 was of 12.18 U/g (72h), P45C3 12.81 U/g (24h), of the P47C3 was of 9.66 U/g (168h) and of the *A. niger* (F12) was of 12.97 U/g in 216h. From results citaded above is able to conclude that the xylanase production by *A. niger* (F12) utilized for comparison was bigger than the isolated strains from Amazonia and that activity FPase of fungi P45C3 and F12 were similar. Studies of other producers better strains enzymes than the *A. niger* (F12) still is done necessary.

412 - INFLUENCE OF NAA AND BAP ON *IN VITRO* PROPAGATION OF *RICINUS COMMUNIS* L.

[3]Vanessa S. Lima; [1]**Ana C.C. Dias**; [1]Mariana G. Mendes; [1]Warwick E. Kerr; [1]Ana M. Bonetti; [2]Luciana N. Londe.

1- Instituto de Genética e Bioquímica. Universidade Federal de Uberlândia – Uberlândia – MG, Brazil; **2-** Empresa de Pesquisa Agropecuária de Minas Gerais (EPAMIG). Nova Porteirinha – MG, Brazil. **3-** Universidade Estadual de Montes Claros. Instituto de Agronomia. 39.440-000, Janaúba – MG, Brazil; e-mail presenting/ corresponding author: anacarol_bio@yahoo.com.br

In face of soaring world energy demand, the search for renewable fuel sources has increased. Among many cultures with potential, the castor bean (*Ricinus communis* L.), has been increasing the supply of raw materials for oil extraction and biodiesel production, and the use of derivatives in many industry sectors. The tissue culture is a support of breeding programs to obtain cells, tissues or organs. Studies to analysis of *R. communis* L. in different concentrations of plant hormones may provide the basis to use this plant as a producer of fuel oil. The aim of this study was to add data to *in vitro* studies of these specie, verifying the effect of growth regulators NAA (naphthalene acetic acid) and BAP (benzylaminopurine) alone or in combination, the rate of budding and production of callus from the culture apical bud. In explants disinfestation was used sodium hypochlorite 2.5% of active chlorine and ethanol (100%). In the experiment was used MS medium supplemented with ascorbic acid (800 mg / L), activated charcoal (3g / L), agar (6 g / L) and pH adjusted to 6.0 before autoclaving. The experimental design was completely randomized