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Control of phytopathogenic microorganisms of post-harvest in tomato (Lycopersicon esculentum Mill.) with the use of citrus extract

Diseases are a major cause of post-harvest losses depending on season, region and management practices. Chemical control is the most used but with serious consequences for human health and the environment. This forces us to carry out more exhaustive studies on botanical products. The general objective of the present study was to evaluate the effect of citrus extracts for the control of pathogens that cause post-harvest diseases in tomato fruit. The product to be evaluated is of botanical origin from citrus extracts. Doses were evaluated (0, 666, 1000, 2000, 4000, 8000 ppm). The treatments were located at a temperature of 25°C±2 and 45% relative humidity (rH). The design used corresponded to a completely random design. The least significant difference was estimated by Tukey Multiple Range test at P=0.05. The statistical tests were performed through the SAS computer program. The results indicate that the pathogens detected and identified correspond to Alternaria tenuissima; Botrytis cinerea; Cladosporium fulvum; Colletotrichum coccodes; Fusarium oxysporum; Geotrichum candidum; Rhizopus stolonifer and Stemphylium macrosporoideum. Our conclusion is that the efficient doses correspond to 666, 2000 and 8000 ppm. With the application of citrus extracts, the damage percentage of tomato fruit was reduced in relation to the control treatments. Based on the results with the application of citrus extracts, the shelf life of the tomato was lengthened.

Research Article **Published Date:-2018-03-27 00:00:00**

Pharmacological effects of Nephrolepis exaltata L. (fern) aqueous extract on an insect-based model (Nauphoeta cinerea)

In this work we used semi-isolated heart of the cockroach Nauphoeta cinerea for the investigation of the pharmacological effects of extracts (aqueous, 1:1, 1:2, 1:4 and 1:8) from Nephrolepis exaltata L. leaves, a popular ornamental fern considered to be safe. The use of insects in experimental studies has grown due to the easy handling, proliferation/growing assuring its rapid obtention, and absence of ethical issues. An aqueous extract 0.2 % was obtained after maceration of 1 g N. exaltata leaves powder with 20 mL of distilled water (1:20). Diluted extracts in water were obtained to have the following proportion 1:1, 1:2, 1:4 and 1:8. Experiments (n=4) consisted of 200 µL addition onto semi-isolated heart preparation of N. cinerea with concomitant heart beating counting. Aqueous, 1:1 and 1:2 extracts paralyzed completely the heart beatings of cockroachs ($p<0.05$ compared to saline control), but not 1:4 or 1:8, which showed only a slight decline ($p>0.05$ compared to saline control). A preliminary thin layer chromatography showed the presence of unidentified terpenoid in aqueous extract of N. exaltata. These pharmacological findings of N. exaltata can be exploited for future use as insecticide or as dose-dependently cholinergic agent.

Review Article **Published Date:-2018-03-20 00:00:00**

Role of HECT ubiquitin protein ligases in Arabidopsis thaliana

Ubiquitination is a kind of posttranslational modification of proteins in eukaryotes, and it plays an important role in the growth and development of organisms. The ubiquitination of proteins is a cascade enzymatic reaction involving three enzymes. The homologous to E6-AP carboxy terminus ubiquitin-protein ligases (HECT E3s) family is an important ubiquitin-protein ligases family. The family all have a HECT domain of approximately 350 amino acids in the C-terminus. However, studies on plant HECT E3s, such as structural features, prediction of HECT domain function, and their regulatory mechanisms, are very limited. In this paper, Arabidopsis thaliana HECT family genes were analyzed, including gene structure and functional domains and its limited known functions in protein degradation, gene transcription regulation, epigenetically regulation or other functions, finally speculate their roles in plant morphologies, aging or responsive to environmental stress.

Research Article **Published Date:-2018-02-08 00:00:00**

Reaction of Psidium guineense and Psidium guajava genotypes to infection of Meloidogyne enterolobii

Psidium guajava (guava) is an important crop and economic resource in many tropical countries and Brazil stands out as one of its major commercial producers. The guava crop has been severely attacked by the plant parasitic nematode Meloidogyne enterolobii which has caused drastic reduction of productivity and, in some cases, even total loss of cultivated areas. The use of resistant rootstocks that are tolerant to these soil pathogens can be a low-cost solution to this pathogen, which has established itself as one of the major constraints for the cultivation of guava in Northeast Brazil. The objective of this work was to evaluate the reaction of P. guajava and P. guineense to M. enterolobii infection under greenhouse conditions, with an infection period of 60 days. 12 P. guineense, and 4 P. guajava were evaluated. The host response to the nematode infection was evaluated according to the following parameters: gill index (GI), reproductive factor (RF), and reduction of reproductive factor (RRF). Considering the RRF criteria, the P. guineense genotypes, AR1, AR3, AR4 and AR10 were considered resistant. The RF index was considered inadequate to evaluate resistance in the 60 days period, due the slow development of the parasite in P.guineense.

Mini Review **Published Date:-2018-01-03 00:00:00**

Common transcriptional regulation of ABA and ethylene

Plant hormones are versatile chemical regulators of plant growth. The concept of hormone ‘interaction’ [1] has gained much importance and several key players of hormonal network are uncovered for major plant hormones. The fact that hormones are structurally unrelated and their interaction elicits different genomic and non-genomic responses suggest hormone interaction involve co-regulation at multiple levels [2]. Recent studies suggest that hormonal interaction involves control over biosynthesis genes [3-6], key components of signalling pathways [7,8], hormone distribution [9,10], and interaction at the level of gene expression [11-13].

Review Article **Published Date:-2018-01-03 00:00:00**

Studies of Grafts in vegetables, an alternative for agricultural production under stress conditions: Physiological responses

Vegetable production by grafting is a technique which it has made possible to resume agricultural soils which previously could not be produced due to stress generated by various abiotic factors, like a lack of water, stress by high or low temperatures, and or heavy metal contamination, among them. It has been documented and defined a number of graftings which they are tolerant to different factors; however, when it comes to auscultating information related to understand the molecular responses and observe what are the biochemical changes and physiological responses of grafted plants, it is dispersed. The current paper attempts to provide basic information documented on technique, addressing the molecular, biochemical and physiological responses, and thus get a clear perspective on the use of grafts, making this practice be used with most frequently by all its advantages.
