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OVERCOMING ABIOTIC AND BIOTIC STRESS CONSTRAINTS IN PLANT SCIENCE

ONLINE

BACTERIAL SPOT RESISTANT GENOTYPE (*CAPSICUM ANNUUM*) PRODUCES ANTI-INFLAMMATORY, ANTIOXIDANT AND ANTIBIOMICROBIAL SUBSTANCES UNDER BIOTIC STRESS

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RESUMO

UENF1381 genotype of jalapeño pepper (*Capsicum annuum*) has shown to be resistant to *Xanthomonas euvesicatoria*, *Colletotrichum scovillei* and *Pepper yellow mosaic virus*. This genotype has been used in the UENF *Capsicum* breeding program, that originated three cultivars registered at the *Ministério da Agricultura, Pecuária e Abastecimento*. Studies involving the identification of secondary metabolites that are produced in the presence of these pathogens may aid to elucidate the resistance mechanism in UENF1381. The aim of this work was to identify secondary metabolites that could be expressed when UENF1381 genotypes were inoculated with *X. euvesicatoria*. UENF1381 plants were grown in a greenhouse and sown in 400 ml pots with commercial substrate Vivatto®. Each treatment was composed of three repetitions and each with three plants. The treatments consisted of two types of inoculation by infiltration with a hypodermic syringe, one with sterile deionized water and the other with bacterial suspension [1×10^5 CFU/mL]. All expanded leaves were inoculated. The leaves were collected in bulk for each biological repetition at 0h and 12h. Leaf extracts were obtained by using 6 mg of lyophilized leaf, 1.5 ml of chloroform (45 min./50°C), and an additional 1.5 ml of ultrapure water (45 min./50°C). After centrifugation for 10 min. at 2000 rpm, the chloroform phase was used for gas chromatography coupled to mass spectrometry (GC-MS) analysis. Sixty-nine metabolites were detected in both treatments. Nine metabolites were expressed only in leaves after inoculation with *X. euvesicatoria* and among them, those with significant biological activities are ethyl palmitate with anti-inflammatory and antibiotic; eicosanoic acid reported in the literature in extracts with antibacterial potential; and hexanedioic acid, bis (2-ethylhexyl) ester with anticancer potential. Perspectives are promising and future work with these substances may ratify the antibacterial action against *X. euvesicatoria*. In addition to the possibility of testing on other

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microorganisms.

PALAVRAS-CHAVE: Chili Pepper, Metabolomic, Disease Resistance

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