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Lipoxygenase 2 (LOX2) and neomenthol reductase expression in sweet passion fruit (*Passiflora alata*) genotypes infected with *Xanthomonas axonopodis*

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Brazil is the world's main producer of passion fruits. The commercial crops are based on two native species, the yellow (*Passiflora edulis*) and sweet passion fruit (*P. alata*). Due to its exotic flavor and aroma, fresh fruits of *P. alata* are very attractive for human consumption and can reach up to triple the fruit prices in local markets. Therefore, it is desirable to grown it at a larger scale, but varieties with resistance to major pests and diseases are unavailable. The leaf spot, caused by *Xanthomonas axonopodis (Xap)* is an important disease, causing several losses to farmers. In this study, we used 10 *P. alata* superior genotypes with different responses to bacterial inoculation in relation to the leaf lesion area. Our aim was to quantify the expression of the enzymes lipoxygenase 2 (LOX2) and neomenthol reductase, both implicated in host defense during yellow passion fruit-*Xap* interaction. Expression analysis was measured using RT-qPCR from leaf extracted mRNA collected 5 days after inoculation with *Xap*. Mock-inoculated plants were used as controls. Both genes showed a consistent pattern of expression, as they were up- or down-regulated in the same set of genotypes, except for one of them (Fig. 1). Lipoxygenase 2 expression was more induced in genotype '136' (3.48×), while neomenthol reductase in genotype '49' (20.58×). Interestingly, both expressions were down-regulated in genotype '110' (0.43× and 0.35×, respectively for LOX2 and neomenthol reductase). Remarkable, no direct association between leaf lesion areas and gene expression was found. Our results may possibly help the selection of superior genotypes on the basis of fruit quality (4) and plant response to *Xap* infection.

Biography

Lourdes Chavarría Pérez has her College Degree in Agronomic Engineering (University of Costa Rica, Costa Rica). She has participated in the *Oryza sativa* breeding initiative in Costa Rica by describing the cultivars in order to develop new technologies for the production of commercial varieties used in the country. Currently, in her PhD project (University of São Paulo, Brazil), she is working on the evaluation of fruit quality traits in a full sib progeny of *Passiflora alata*, a tropical species native to the Amazonian plateau, seeking to improve desirable characteristics such as to increase the weight of fruit pulp and decrease the thickness of fruit skin.

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