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Metabolomic comparison of isolates of the endophytic fungus *Guignardia mangiferae* collected in different hosts and geographical regions

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The fungus *Guignardia mangiferae* is an endophytic found in several plant species and has a worldwide geographical distribution. In this study, two isolates of this species from Brazil (F75) and New Zealand (ICMP 15453) and from different plant hosts, *Glycine max* (F75) and *Vaccinium virgatum* (ICMP 15453) were evaluated for the differences found in the metabolic profile by GC-MS (gas chromatography mass spectrometry) and metabolome by LC-MS (Liquid chromatography mass spectrometry). In the analysis of metabolic profiles, the crude extracts analyzed revealed that 19.76% of the detected compounds varied significantly ($P \leq 0.05$) in the methanolic extract, 17.44% of the detected molecules varied significantly between the metabolites extracted by ethyl acetate and 10% of the compounds detected as fatty acids varied significantly, however all the compounds were present in the two isolates. In the results generated by LC-MS, overlaps in retention times between the two isolates were observed in the chromatograms (extraction of the metabolites with ethyl acetate detected with positive and negative ionization and extraction of the metabolites with methanol with positive ionization and negative). Significant variations were also observed through the "t" test ($P \leq 0.05$) of the compounds detected between the two fungi, while the variation between fungi and control compounds was higher. Principal component analysis performed with ions detected by LC-MS in all treatments showed that the first component accounted for most of the compounds, bringing together more than 90% of all compounds. Components 2 and 3 were less representative, with the second component accounting for less than 10% of variations and the third component less than 1%. Through this study, it was possible to identify promising producers of compounds of industrial and biotechnological interest, with F75 isolate being the best isolated for the production of GABA and 2, 3-butanediol and 15453 isolate the best producer of the antifungal benzofuran. However, both isolates presented a great production of organic acids such as fumaric and malic. We concluded that these two fungi from different geographical regions and hosts showed metabolic variations, both in abundance and metabolic type.

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