Chemical composition and antifungal effect of ethanol extract from *Sapindus saponaria* L. fruit against banana anthracnose

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Abstract

Anthracnose causes severe losses in banana production, and Colletotrichum musae is one of the most important pathogens responsible for this fungal disease. Fungicides, such as thiabendazole, are used to control postharvest anthracnose and indirectly extend the shelf life of banana fruits. However, some fungicides can have harmful effects on public health as well as on the environment and biodiversity. A natural alternative to conventional antifungal agents could be the solution to meet the demand for healthier and less toxic food. In this study, the effect of ethanol extract of Sapindus saponaria L. fruit was evaluated in vitro against three Colletotrichum species: C. musae, C. gloeosporioides, and C. boninense. The activity of the ethanol extract against C. Musae was similar to that of thiabendazole at 500 µg/mL. A fractionation, bioguided by antifungal activity, led to a semi-purified fraction that contained saponin 3-O-(β -d-xylopyranosyl)- $(1 \rightarrow 3)$ - α -l-rhamnopyranosyl- $(1 \rightarrow 2)$ - α -l-arabinopyranosyl hederagenin and acyclic sesquiterpene oligoglycoside. This fraction presented an inhibition halo with a diameter of 10.7 mm at 125 µg/mL. Although the semi-purified fraction was the most active, crude ethanol extract is a low-cost and environmentfriendly alternative to conventional fungicides for the control of postharvest banana anthracnose.