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## ALOE VERA BAGASSE EXTRACTS AS POTENTIAL CONTROL OF POSTHARVEST FUNGAL DISEASES

M. L. Flores-López<sup>1</sup>, M. A. Cerqueira<sup>1</sup>, D. Jasso de Rodríguez<sup>2</sup>, A. A. Vicente<sup>1,\*</sup>

<sup>1</sup>IBB – Institute for Biotechnology and Bioengineering, Centre of Biological Engineering, University of Minho, Campus de Gualtar, Braga, 4710-057, Portugal

<sup>2</sup>Universidad Autónoma Agraria Antonio Narro, Saltillo, Coahuila, 25315, Mexico

Chemical treatment is one of the primary means for control of postharvest fungal diseases on fruit and vegetables and applied during storage allows for shelf life extension and reduced spoilage. However, many fungicides are being removed from postharvest treatment due to their potential toxic hazards. The use of plant extracts (in some cases with strong bioactivity) is one attractive alternative, and has already proven their efficacy against some important postharvest pathogens.

This work aims at evaluating extracts from *Aloe vera* bagasse (AvB) in terms of their antioxidant activity, phenolic content, and to identify their antifungal activity.

*Aloe vera* leaves (bagasse) were separated from the inner gel and the liquid fraction was dried at 40°C. AvB was ground to reduce the particle size (mesh No. 50), then the bagasse was added to a Soxhlet extractor and continuously extracted during 48 h with absolute ethanol or distilled water as solvent (1:20), at 78.4 and 99.4°C, respectively, thus obtaining an ethanolic (EE) or an aqueous (AE) extract. Bioactive extracts were then filtered with Whatman No. 1 paper and the solvent was separated in a rotary evaporator. Yields of extraction were determined. Total phenolic content (TPC) was measured using the Folin-Ciocalteu method (results expressed as mg of gallic acid per g of extract). The antioxidant activity was measured by the DPPH-scavenging method and expressed as percentage of radical scavenging activity (RSA). Antifungal activity of AE and EE were evaluated against four postharvest fungal pathogens (*Botrytis cinerea*, *Rhizopus stolonifer*, *Penicillium expansum* and *Alternaria* sp.) by the poisoned culture medium technique at concentrations of 0, 50, 100, 500, 1000 and 2000 ppm. The results showed that the yield of extraction can vary according to the solvent used (47.41% and 9.63% for AE and EE), respectively. The ethanolic extract showed a higher value of TPC (196.62 mg<sub>gallic acid</sub>/g extract) and a similar antioxidant activity (19.57 % of RSA) as AE (60.57 mg<sub>gallic acid</sub>/g extract and 24.76 % of RSA). In addition, the treatments with EE presented a major antifungal activity against the fungal pathogens tested with an inhibition percentage ranging from about 40% -90%.

*Aloe vera* bagasse extracts showed good antifungal activity, and therefore could be an alternative for fungal control. Furthermore, antioxidant activity detected in both AvB extracts could be applied to increase fruit and vegetable quality.