ANTI-METAPNEUMOVIRUS ACTIVITY OF A NEGATIVELY CHARGED POLYSACCHARIDE FROM Aloe barbadensis

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Aloe barbadensis polysaccharides are complex molecules that present many biological activities. The aim of this study was to evaluate antiviral activity of A. barbadensis neutral and negatively charged polysaccharides in infections caused by human metapneumovirus (HMPV). For this, the foliar pulp was submitted to aqueous extraction (70 °C) and the total polysaccharides (TP) obtained by ethanol precipitation and TCA was used to remove the protein contamination. The fractionation of TP with DEAE-celulose resulted in two fractions: neutral polysaccharides fraction (PI) and negatively charged polysaccharide (PII). The antiviral properties of TP, PI and PII was detected only by amplification of the newly synthesized HMPV proviral cDNA by the qRT-PCR in LLC-MK2 cells. PII fraction were able to inhibit 96.60 % of the infection caused by HMPV on the concentration of 3.9 mg.mL\(^{-1}\). These results could be accompanied by the almost nonexistent amplification of viral RNA through analysis by qRT-PCR. In addition, were obtained values for CC\(_{50}\) 182 mg.mL\(^{-1}\) and ED\(_{50}\) 0.48 mg.mL\(^{-1}\), which suggest high selectivity index (IS). The IS obtained (379) is suggestive to assert the safety of using PII as an antiviral agent in a concentration of 3.9 ug.mL\(^{-1}\) for LLC-MK2 cells. In addition, the TP showed activity against HMPV, reaching 85.77% inhibit the viral infection at 7.8 0.48 mg.mL\(^{-1}\). With respect to PI, it was observed viral RNA amplification similar to the control group, suggesting therefore that there was no inhibition of the virus. Thus, the results suggest that the negatively charged groups of PII are involved in the inhibition of infection caused by HMPV.

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