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DEVELOPING A CHROMATOGRAPHIC METHOD FOR THE ISOLATION AND EVALUATION OF THE IN VITRO ANTI-SARS-COV-2 ACTIVITY OF LISBOAEFLAVANONOL A

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The genus *Eugenia*, part of the Myrtaceae family, is abundant in the Amazon with around 100 species, but remains chemically underexplored. This study focuses on lisboaeflavanonol A, a glycosylated flavonoid from *Eugenia lisboae* leaves, previously identified by Neves *et al.* (2021) as a potential SARS-CoV-2 inhibitor in *in silico* assays targeting the 3CLpro and RdRp proteins. This work had two primary goals: to optimize the isolation method of this flavonoid and to confirm its *in vitro* antiviral activity against SARS-CoV-2. Researchers applied advanced chromatographic methods (HPCCC and CCC) to the methanolic leaf extract. The HPCCC proved highly effective, boosting the isolation yield of lisboaeflavanonol A to 2.25%, a nearly tenfold increase compared to the previous 0.27% yield. This significant methodological improvement allows to produce larger quantities of the compound for future biological studies. The organic structure was characterized using NMR and MS data. For the antiviral assessment, the isolated flavonoid was tested *in vitro* at concentrations of 50, 10, and 2.0 µg. mL^{-1}against the original SARS-CoV-2 strain (Wuhan-Hu-1) and the Delta and Omicron variants. The results confirmed its antiviral potential, showing a reduction in viral infectivity by 7.5% (at 50 µg. mL^{-1}), 22.1% (at 10 µg. mL^{-1}), and 27.5% (at 2.0 µg. mL^{-1}). Therefore, this study successfully established a more efficient isolation method for lisboaeflavanonol A and provided crucial experimental validation of its anti-SARS-CoV-2 activity, contributing to the potential development of a natural antiviral drug.

Keywords: *Antiviral; Eugenia lisboae; HPCCC; SARS-CoV-2.*

Reference:

1. Neves, K.O., et al., *Lisboaeflavanonol A: A new flavonoid glycoside obtained from Amazonian Eugenia lisboae.* Phytochemistry Letters, 2021. **43**: p. 65-69.