

A quantitative PCR assay for antiviral activity screening of medicinal plants against Herpes simplex 1

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Abstract

Herpes simplex virus one is one of the most prevalent pathogens worldwide. Strains resistant to current treatment have been reported, so it is necessary to search for new antiviral molecules. The most common method to quantify antiviral activity from natural products is the plaque reduction assay, a technically demanding method. In order to provide a simple alternative to this method, we have established a procedure for viral quantification by qPCR, and coupled with a cytotoxicity evaluation system using resazurin. In this way, it is possible to obtain both the estimation of cytotoxicity and the antiviral activity simultaneously, allowing rapid screening of plant extracts. Ten out of twenty-eight Paraguayan medicinal plant extracts evaluated using this method showed antiviral activity, and the EC₅₀, CC₅₀, and SI values were calculated for each extract. Our experience supports the employment of the described method for a rapid identification of plant extracts with antiviral activity.