III SIMPÓSIO INTERNACIONAL EM INVESTIGAÇÕES QUÍMICO-FARMACÊUTICAS
I ENCONTRO IBERO-AMERICANO DE PLANTAS MEDICINAIS DR. MAHABIR GUPTA
I CONGRESSO LUSO-BRASILEIRO DE CIÊNCIAS E TECNOLOGIAS EM SAÚDE

**Área: QMC 21**

# THE GENUS *Kielmeyera* (CALOPHYLLACEAE) AS A POTENTIAL SOURCE OF ANTIVIRAL COMPOUNDS AGAINST SARS-CoV-2

Heiter V.M. Boness[1], Lúcio Freitas-Júnior[2], Elisângela F. Boffo[1], Ronan Batista[1]*, Frederico G. Cruz[1]

*[1]Universidade Federal da Bahia, Brasil. [2]Universidade de São Paulo, Brasil. *ronbatis@ufba.br*

## INTRODUCTION

The virus SARS-CoV-2 belongs to the Coronaviridae family and is responsible for the Coronavirus disease 2019 (COVID-19), which has rapidly spread on a global scale and affected the economy and public health systems throughout the world. Although different vaccines have been approved and used to vaccinate the world's population, the constant emergence of viral variants directs us to seek the development of new drugs for the treatment of severe cases that have not responded to vaccines. Taking into account the enormous contribution of natural products to the development of new drugs, this study aimed to assess the potential of plants pertaining to the *Kielmeyera* genus as sources of antiviral compounds against SARS-CoV-2.

## MATERIAL AND METHODS

The SARS-CoV-2 assay was performed on Vero cells through the High Content Screening (HCS) method. The sample collection was reformatted into a 384-well plate and the samples were diluted to a concentration of 2 mg/mL in DMSO. Extracts were tested at a single concentration. Before performing cell treatment, extracts were diluted 33.33x in Phosphate-Buffered Saline (PBS), and 10 µL of each dilution was transferred to assay plates, thus having a final dilution factor of 200x. Chloroquine was used as the positive control. Vero CCL-81 cells were plated in 384-well plates. After 24 hours, the cells received the extracts as indicated above, and then the virus was added at a multiplicity of assay (MOI) of 0.1 viral particles per cell. The final concentration of DMSO in the assay plates was 0.5% (v/v). After 33 hours of the SARS-CoV-2 assay, the plates were fixed, and immunofluorescence was performed with sera from COVID-19 patients. The images were acquired and analyzed by the HCS Operetta equipment. The parameters measured in each well were: total number of cells and total number of infected cells. The reduction in the number of infected cells was indicated as a percentage.

## RESULTS AND CONCLUSIONS

The assay screened 16 different extracts from *Kielmeyera* species. From them, 13 extracts were active against SARS-Cov-2 infection, showing inhibition rates of 4 to 72%. Cell viability was found to be low in those cases, indicating that the antiviral activities observed for the active extracts appear to be non-selective. This study also suggests that the most active extracts deserve further attention for dereplication studies in order to isolate and identify the natural constituents responsible for the antiviral activity. Thus, we can conclude that all the obtained results reveal the potential of plant species from the *Kielmeyera* genus as sources of antiviral compounds against SARS-Cov-2.

**ACKNOWLEDGMENTS:** CAPES, CNPq and UFBA for grants and fellowships.