

ORT_27 - Triterpenes isolated from Amazon Breu tree: a possible weapon against dengue virus?

Marianne de Alencar Teles Viana¹; Vivian Valerie Dorgam dos Santos¹; Bianca Nadini Teixeira Fernandes¹; Rosilene Gomes da Silva Ferreira¹; Raimundo Sousa Lima Júnior¹; Gladys Corrêa¹.
¹UEA

Introduction: Dengue is a worldwide known disease for having caused several outbreaks on different continents, being transmitted mainly by mosquitoes *Aedes aegypti* and *Aedes albopictus*, it occurs from infection with viruses that belong to the Flaviviridae family, such as the Dengue virus (DENV) which has four different serotypes: DENV-1, DENV-2, DENV-3 and DENV-4. Currently, there are many treatments capable of attenuating or mitigating the clinical manifestations caused by virus infection, not specifically for dengue virus, such as the use of bioactive compounds for the production of drugs, as many medicinal plants that have bioactive proteins and peptides, which are associated with an antioxidant, anti-inflammatory response. In addition, the Amazon Forest is a place of high biodiversity and has many bioactive compounds that can be used for the development of drugs of medical importance, particularly plants of the genus *Protium sp.* (Breu Amazônico), which can act through anti-inflammatory and healing action, especially in the context of triterpenes molecules.

Objectives: This study aims to evaluate the antiviral action of purified molecules of Amazonian Breu (*Protium sp.*) in hepatocytes infected by the DENV-2.

Methodology: The molecule used was purified according to the protocol by Ferreira, et al., 2020 for triterpenes and named with the acronym AO in the present work. The viral stock was made according to the methodology of Reed and Much, 1938. The evaluation of cellular predictions was carried out using the MTT Invitrogen test (Thermo Fisher Scientific), following the manufacturer's instructions. Antiviral activity was determined using the Platelia Dengue NS1 Ag ELISA Kit (BioRad), which is an immunoenzymatic assay, following the manufacturer's instructions.

Results: The cytotoxicity assay demonstrated that the AO (Purified from *Protium sp.*) molecule is not toxic to cultured Huh-7 cells (Human Hepatocytes). The viral mass production assay was positive for Dengue NS1, when measuring supernatant from C6/36 cells infected with DENV-2, without dilution, 10x, 25x, 40x and 50x diluted, compared to the negative control. from the Platelia NS1 Dengue Kit and with only the supernatant from C6/36 cells (Mock). Treatments for 24h and 48h with the 10µg/mL AO molecule demonstrated a significant antiviral action in Huh-7 hepatocytes infected with DENV-2.

Conclusion: Preliminary results showed the antiviral action of the AO molecule, isolated from Breu Amazônico, in hepatocytes of the Huh-7 lineage, which demonstrates a possible therapeutic potential based on bioprospecting of molecules from the Amazonian diversity.

Keywords: Dengue; Amazon Breu; Antiviral