

## Anticancer Drug Discovery and Development in Suriname; Studies on Surinamese Medicinal Plants with Antiproliferative and/or Angiosuppressive Characteristics by the Research Group Medicinal Plants

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### Introduction

Plant products with medicinal properties have proven to be valuable sources in the treatment of a multitude of ailments. The Research Group Medicinal Plants of the ADEK University of Suriname, South America, is making an ongoing research effort to test and identify the physiological significance and novel chemical structure of bioactive molecules with healing properties; this in preparation for future clinical trials.

### Experimental

Methanol extract of plant material was fractionated with an aluminum oxide column. Fractions were tested for physiological activity at ADEK University of Suriname using an isolated organ system. Physiologically active fractions were frozen and shipped to the University of Florida (UF) where they were lyophilized to determine the concentration (40-50 mg/ml), dissolved in Deuterium Oxide (10  $\mu$ l in 60  $\mu$ l D<sub>2</sub>O) and subject to Advanced Magnetic Resonance Imaging and Spectroscopy testing (NMR, Bruker Avance 500 Console with 5mm TXI probe) for molecular conformation / structural configuration. Molecular weights of potential candidates were determined by High Resolution Mass Spectrometry (HPLC-MS: ESI-MS method) using a dual approach: a HILIC column (Phenomenex LUNA HILIC) for polar compounds and a Reverse Phase column (Phenomenex Onyx Monolithic C<sub>18</sub>) for semi-polar compounds.

### Results and Discussion

Initial NMR profiles revealed an interesting group of aromatic compounds, structurally linked to a multitude of carbohydrate candidate molecules. This association was confirmed and the carbohydrate abundance in the sample called for further separation of this particular fraction. Carbohydrate fractionation would allow for a more focused search narrowing down aromatic compounds and their respective carbon structure associations.

### Conclusions

Fractionation based on carbohydrate separation and collection using HPLC technology is imperative for further progress. Based on the hydrophilic nature of the compound of interest, two approaches are currently being followed focusing on both semi-polar and polar compounds. Fractionation will be based on the first 7 minutes of Retention Time at 30 minute segments. Eluent coming off HPLC columns (HILIC and RP) will be screened for physiological activity and subsequently subjected to follow up NMR structural identification.

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### References

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