

Title: FUROSTAN SAPONINS FROM *Solanum seafortianum* AND ANTIFUNGAL ACTIVITY AGAINST *Moniliophthora perniciosa*

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Abstract

The fungal phytopathogen *Moniliophthora perniciosa*, the causal agent of Witches' Broom disease of cacao, is the main responsible by limiting cacao production in Americas. Among the current control methods to this disease, the chemical management requires more diversity and new action strategies. In the search of efficient compounds, natural products are a source of models and templates for the development of pesticides with new modes of action. The Solanaceae family is known as a source of many antifungal secondary metabolites. The plant *Solanum seafortianum*, a Solanaceae plant, showed having a potent antifungal activity against *M. perniciosa* in previous study realized by our research group. As this plant was relatively poorly studied about its bioactive secondary metabolites constitution, the aim of this study was to isolate and identify the secondary metabolites from *S. seafortianum* with antifungal activity against *M. perniciosa*. Therefore, for isolation of compounds, a leaf water extract from *S. seafortianum* was fractionated by chromatographic techniques, such as liquid-liquid partition, Sephadex[®] LH-20 column, Sep-Pak cartridge and high-performance liquid chromatography (HPLC). For structural identification, the compounds obtained were analyzed by mass spectrometry, UV-visible and nuclear magnetic resonance (NMR). For determining their antifungal activity, the compounds were studied in biological assay against *M. perniciosa*. The identification of isolated compounds results in a furostan saponin mixture (25R)-karatavioside C / (25R)-purpureagitoside, in which the unique difference between both molecules is the double bond at C5 and C6 carbons. This mixture showed fungicide activity to basidiospore germination and mycelial growth of *M. perniciosa*. The isolation of these furostan saponins from *S. seafortianum* and their antifungal activity are reported for the first time.

Keywords: fungicide, natural product, phytopathogen, secondary metabolite, solanaceae

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