Cytotoxicity evaluation of *nor*-neolignans from the fruits of two *Styrax* species.

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Introduction

Styrax camporum and S. ferrugineus belong to the Styracaceae family. Phytochemical investigations of *Styrax* species have reported lignans, neolignans, *nor*-neolignans, phenolic acids, saponins and triterpenes.[1] We now describe the isolation and structural identification of chemical constituents from the methanol extract of *S. camporum* and *S. ferrugineus* fruits, as well as their cytotoxicity activities.

Results and Discussion

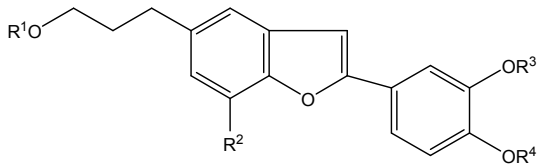
The powdered fruits of *S. ferrugineus* (95 g) and *S. camporum* (63 g) were extracted with methanol. Subsequently filtration, the solvents were removed under reduced pressure, to yield 8.6 g e 13.3 g of the extract. The extracts (3.5 g, *S. ferrugineus*) e (5 g, *S. camporum*) were chromatographed on silica using a gradient of *n*-hexane/EtOAc as eluent. Compounds **1**, **2**, **3** and **4** were isolated from *S. camporum*. Preparative RP-HPLC and prep-TLC were employed to purify **1** and **2**, respectively. The *S. ferrugineus* extract yield compounds **3**, **4**, and **5**. Compound **5** was isolated by prep-TLC. Compounds **3** and **4** were acetylated (**3a**) and (**4a**).

The spectral data of all the isolated compounds (Figure 1) are in agreement with previously published data and allowed for identification of demethoxyhomoegonol (**1**), demethoxyegonol (**2**), homoegonol (**3**), egonol (**4**), and egonol-2-methylbutanoate (**5**).

The screening for cytotoxic activity against cell line GM07492A (normal human lung fibroblasts) was assessed using the Colorimetric Assay *In Vitro* Toxicology - XTT Kit (Roche Diagnostics).

The extracts of *S. ferrugineus* and *S. camporum* shown IC_{50} of 270.8 ± 14.2 µg/mL and 164.7 ± 10.9 µg/mL, respectively. Treatment of the cells with compounds **1**, **2**, **3a**, and **4a**, did not reveal statistically significant reduction in cell viability at assayed concentrations. Although, compound **5** shown IC_{50} of 50.26 ± 1.97 µM. In this case, IC_{50} was considered promising, when compared with the other compounds and with previously publish data for compounds **3** and **4**.[2]

The most promising compound (**5**) exhibited similar chemical structure, differing only in the presence of a 2-methylbutanoate moiety, which increased the hydrophobicity and the activity.



	R^1	R^2	R^3	R^4
1	H	H	CH_3	CH_3
2	H	H	$-CH_2-$	
3	H	OCH_3	CH_3	CH_3
4	H	OCH_3	$-CH_2-$	

5  H $-CH_2-$

Figure 1. Chemical structures of the isolated compounds.

Conclusions

The compound **5** was more toxic to cell line, and the hydrophobicity could be explored to improve cytotoxic activity.

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