Preliminary characterization of *Vochysia rufa* (Vochysiaceae) stem bark and its protective effect against oxidative stress on endothelial cells.

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### Introduction

Increased oxidative stress by persistent hyperglycemia is a widely accepted factor in vascular damage responsible for type 2 diabetes complications¹. The plant *Vochysia rufa* (Vr) has been used in folk medicine in Brazil for the treatment of type 1 and 2 diabetes². In this study, the protective effect of a Vr stem bark extract against a challenge by a high glucose concentration on EA.hy926 (EA) endothelial cells was evaluated.

### Results and Discussion

*V. rufa* stem bark is composed mainly of sugars, such as inositol, galactose, glucose and mannose with m/z of 179; sacarose with m/z of 341; arabinose and ribose with m/z of 149. LC-MS analyses suggest is too imprecise better reveals or shows the presence of the flavonoids. The Vr in basal conditions did not affect cell viability. The treatment of the EA cells with 30 mM of glucose for 24h significantly increased the cell damage. Furthermore, EA cells treated with 30 mM of glucose showed a decrease of reduced glutathione (GSH) concentration and increased protein carbonyl levels and activity of antioxidant enzymes, compared to control (Figure 1).

**Figure 1. Protective effect of Vr extract on the GSH (a) and GPx activity (b) of EA cells treated with 30 mM glucose (G30).**

Vr concentrations significantly reduced cell damage evoked by glucose. While 5 and 10 µg/ml Vr evoked a partial protection against the glucose insult, 25 µg/mL Vr fully recovered GSH, antioxidant enzymes and carbonyls to baseline levels.

### Conclusions

This study demonstrates that phytochemicals from *V. rufa* stem bark may help to protect endothelial cells against oxidative damage by modulating GSH concentration, antioxidant enzyme activity and protein carbonyl levels.

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### Referências