A New Steroidal Saponin from Agave brittoniana and Its Biphasic Effect on the Na\textsuperscript{+}-ATPase Activity

Graziela M. Silva\textsuperscript{a}, Aloa M. De Souza\textsuperscript{b}, Luciene S. Lara\textsuperscript{b}, Tatiana P. Mendes\textsuperscript{a}, Bernadete P. da Silva\textsuperscript{a}, Anibal G. Lopes\textsuperscript{b}, Celso Caruso-Neves\textsuperscript{b}, and José P. Parente\textsuperscript{a,*}

\textsuperscript{a} Núcleo de Pesquisas de Produtos Naturais, Universidade Federal do Rio de Janeiro, Centro de Ciências da Saúde, 21944-970, P.O. Box 68045, Rio de Janeiro, Brasil.
Fax: +55-21-2562-6791. E-mail: parente@nppn.ufrj.br

\textsuperscript{b} Instituto de Biofísica Carlos Chagas Filho, Universidade Federal do Rio de Janeiro, Centro de Ciências da Saúde, Rio de Janeiro, Brasil

* Author for correspondence and reprint requests

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A new steroidal saponin, 3-{((O-6-deoxy-\alpha-L-mannopyranosyl-(1→4)-O-\beta-D-glucopyranosyl-(1→3))-O-[\beta-D-glucopyranosyl-(1→3)-\beta-D-glucopyranosyl-(1→2)]-O-\beta-D-glucopyranosyl-(1→4)-\beta-D-galactopyranosyl)oxy}-6-hydroxy-(3\beta,5\alpha,6\alpha,25R)-spirostan-12-one, was isolated from Agave brittoniana Trel. The structure was determined by extensive NMR spectroscopy studies and chemical conversions. Its effects on the Na\textsuperscript{+}-ATPase and (Na\textsuperscript{+}+K\textsuperscript{+})-ATPase activities of the proximal tubule from pig kidney were evaluated. It was observed that this steroidal saponin exerts a biphasic effect on the Na\textsuperscript{+}-ATPase activity. It is concluded that the effect of the aqueous extract as a diuretic is due, at least in part, to the action of saponin on the ouabain-insensitive Na\textsuperscript{+}-ATPase.

Key words: Agave brittoniana, Steroidal Saponin, Na\textsuperscript{+}-ATPase