

Modulation of Sodium Pumps by Steroidal Saponins

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Costus spicatus, used in Brazilian traditional medicine to expel kidney stones, contains steroidal saponins with different chemical characteristics. In spite of its popular utilization as potent diuretic, no scientific reports correlate this activity with the chemical constituents of the extract. Therefore, two steroidal saponins (3 β ,22 α ,25*R*)-26-(β -D-glucopyranosyloxy)-2-methoxyfurost-5-en-3-yl *O*-D-apio- β -D-furanosyl-(1 \rightarrow 2)-*O*-[6-deoxy- α -L-mannopyranosyl-(1 \rightarrow 4)]- β -D-glucopyranoside (**1**) and (3 β ,22 α ,25*R*)-spirostan-3-yl *O*-D-apio- β -D-furanosyl-(1 \rightarrow 2)-*O*-[6-deoxy- α -L-mannopyranosyl-(1 \rightarrow 4)]- β -D-glucopyranoside (**1a**), were isolated from the rhizomes of this plant and their effects on the Na⁺-ATPase and (Na⁺+K⁺)-ATPase activities of the proximal tubule from pig kidney were evaluated. It was observed that **1** and **1a** inhibit specifically the Na⁺-ATPase activity.

Key words: *Costus spicatus*, Steroidal Saponins, Na⁺-ATPase, (Na⁺+K⁺)-ATPase