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Short Communication

# Antileishmanial and cytotoxic activity of secondary metabolites from *Taberneamontana ventricosa* and two aloe species

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## Abstract

In this study, the antileishmanial and cytotoxic activities of secondary metabolites isolated from *Tabernaemontana ventricosa* Hochst. ex A. DC., *Aloe tororoana* Reynolds, and *Aloe schweinfurthii* var. *labworana* Reynolds were investigated. Overall, nineteen known compounds were isolated from the three plant species. The compounds were characterized based on their spectroscopic data. Voacristine and aloenin were the most active compounds against promastigotes of antimony-sensitive *Leishmania donovani* ( $IC_{50}$   $11 \pm 5.2 \mu\text{M}$  and  $26 \pm 6.5 \mu\text{M}$ , respectively) with low toxicity against RAW264.7, murine monocyte/macrophage-like cells. The *in silico* docking evaluation and *in vitro* NO generation assay also substantially support the antileishmanial effects of these compounds. In a cytotoxicity assay against cancer and normal cell lines, ursolic acid highly inhibited proliferation of lung cancer cells, A549 ( $IC_{50}$   $6.61 \pm 0.7 \mu\text{M}$ ) while voacristine was moderately active against human liver cancer cells, HepG2 ( $IC_{50}$   $23.0 \pm 0.0 \mu\text{M}$ ). All other compounds were inactive against the test parasites and cell lines.

 Graphical abstract

**Q Keywords:** *Tabernaemontana ventricosa* aloe antileishmania cytotoxicity voacristine aloenin ursolic acid

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