

Hall, Christopher A., Traci Hobby, and Martin Cipollini. "Efficacy and Mechanisms of α -Solasonine and α -Solamargine-Induced Cytolysis on Two Strains of *Trypanosoma cruzi*." *Journal of Chemical Ecology* (2006) 32: 2405-2416.

Abstract. Two genetically diverse strains of *Trypanosoma cruzi* were tested in vitro for susceptibility to the solanum-derived triglycoside alkaloids solasonine and solamargine. Cytolytic assays were performed on epimastigotes (EMs) and bloodstream form trypomastigotes (BSFs) lifecycle stages by using serial dilutions of each alkaloid. Each alkaloid effectively lysed both lifecycle stages, although solasonine routinely required higher concentrations to induce similar results. EMs demonstrated greater resistance to cytolysis than BSFs at equal concentrations of either alkaloid. No significant resistance could be correlated to parasite strain. The reported synergistic cytolytic effects observed upon compounding solasonine and solamargine together were also tested. We failed to identify any cytolytic synergism in cultures of EMs or BSFs. The role of rhamnose-binding proteins (RBPs) in mediating cytolysis was investigated through competitive inhibition experiments. The addition of exogenous L-rhamnose to the media failed to reduce parasite attrition independent of the parasite lifecycle stage. Based on these results, we suggest the mechanisms involved in cytolysis of *T. cruzi* by solasonine and solamargine are largely independent of rhamnose receptor-specific interactions. We propose that attrition likely involves less-specific carbohydrate interactions, which lead to the formation and intercalation of sterol complexes into the parasite plasma membrane.

Keywords: Glycoalkaloids, *Solanum*, α -solasonine, α -solamargine, *Trypanosoma cruzi*, Cytolysis, Antiparasitic, Chagas disease, Rhamnose binding proteins