**Vernonia condensata**: gastroprotective and anti-inflammatory activities

Augusto S. Borges, Bruno R. Minozzo, Rita de Cassia R. Gonçalves, Flavio L. Beltrame, Rodrigo R. Kitagawa

1Department of Pharmaceutical Sciences, Federal University of Espírito Santo, Vitória, ES, Brazil
2Department of Pharmaceutical Sciences, State University of Ponta Grossa, Ponta Grossa, PR, Brazil

**Vernonia condensata** Baker, Asteraceae, is a medicinal plant used in folk medicine in Brazil for the treatment of gastric and hepatic injuries. This study aimed to evaluate the gastroprotective and immunomodulatory effects of aqueous and hydroalcoholic extracts of *V. condensata*. The gastroprotective assay was assessed using an ethanol-induced ulcer model in rats. The immunomodulatory activity was measured *in vitro* by detecting nitric oxide and cytokines (TNF-α and IL-6) in LPS-stimulated macrophages. Also, we performed direct NO assay with NO chemically generated using sodium nitroprusside (SNP) molecules. Oral treatment with *V. condensata* extracts showed gastroprotective effect higher to hydroalcoholic extract (78%) than aqueous extract (55 %) (both at 200 mg/kg by oral gavage). For the immunomodulatory activity results, hydroalcoholic extract was more effective decreasing the NO (up to 80% inhibition) and cytokines (up to 30% for TNF-α and 90% for IL-6) production in LPS-stimulated macrophages. Both aqueous and hydroalcoholic extracts did not show significant inhibitory activity against SNP-generated NO. Therefore, the results indicate that the greater gastroprotective effect of *V. condensata* hydroalcoholic extract may be related to its higher immunomodulatory potential.

Keywords: *Vernonia condensata*, gastroprotective, immunomodulatory.

Acknowledgments: The authors thank CAPES for the scholarship granted to ASB and FAPES/CNPq/MS-Decit for the financial support granted to R.R.K. (process number 65764307/2014).

References