

Immunomodulatory properties of *Achyrocline satureioides* (Lam.) D.C.

infusion: A study on human leukocytes

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Abstract

Aim of the study: *Achyrocline satureioides* (Lam.) D.C. is a South American native medicinal herb known by the popular name of "Marcela". Its infusion is widely utilized for the treatment of several digestive ailments, as an anti-inflammatory preparation, as a sedative and anti-atherosclerotic. Circumstantial evidence suggests that extracts of *Achyrocline satureioides* may have immunomodulatory properties. The present study was therefore devised to investigate the *in vitro* effects *Achyrocline satureioides* infusion on human peripheral blood mononuclear cells (PBMCs) and polymorphonuclear leukocytes (PMNs).

Materials and methods: Experiments were performed on cells isolated from venous blood obtained from healthy donors. PBMC proliferation and cytokine production were assessed by standard ELISA methods. Reactive oxygen species (ROS) production by PMNs was evaluated by spectrofluorimetry.

Results: In PBMCs, *Achyrocline satureioides* infusion in the 0.06–0.24 μ g/ml quercetin equivalent (QE) concentration range concentration dependently reduced PHA-induced proliferation and production of interferon (IFN)- γ and interleukin (IL)-4. Lower concentrations of the infusion (0.006–0.03 μ g/ml QE), which were ineffective on cell proliferation, significantly increased the production of both IFN- γ and IL-4 and decreased the ratio IFN- γ /IL-4. In PMNs, *Achyrocline satureioides* infusion slightly increased the spontaneous generation of ROS only at concentrations \geq 0.06 μ g/ml QE. On the contrary, in the 0.0012–0.03 μ g/ml QE concentration range the infusion profoundly inhibited fMLP-induced ROS generation as well as spontaneous and fMLP-induced IL-8 production.

Conclusions: The present results provide evidence that *Achyrocline satureioides* infusion may exert several immunomodulatory effects, in line with its traditional use as an anti-inflammatory agent in many disease conditions. Further studies are warranted to better characterize such effects and to assess their therapeutic relevance.

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