Pterodon polygalaeflorus effect on migration of macrophages in experimental model of inflammation in vitro

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Inflammation is a response to damage cell and tissue caused by microbial infections or adverse stimuli of chemical or physical origin. The inflammatory response includes the recruitment of macrophages and effectors lymphocytes T and B for infection through a range of inflammatory mediators. The cascade of inflammation involves cellular mechanisms, such as the increase of chemotaxis, grip and infiltration of inflammatory cells; and humoral, involving the release of cytokines and growth factors. Many substances derived from plants are effective agents in the treatment of inflammatory diseases. Alcoholic extracts of fruits of Pterodon polygalaeflorus species, known as Sucupira, are used in folk medicine as anti-inflammatory agents. Our previous studies showed the anti-inflammatory effect of this plant in vitro and in vivo. The present work aimed to study the immunomodulatory effect of this plant (crude Hexanic extract and its fractions) in cell migration in vitro. Raw 264.7 cells were treated with different concentrations of crude extract and fractions of P. polygalaeflorus for determination of cytotoxicity by MTT method and study of cell migration by Wound Healing and Chamber Boyden transwell assays. It was observed that both the crude extract and fractions of the plant, at concentrations of 20 μg/mL and 40 μg/mL, were not toxic to the cells, as there was no statistical difference in the MTT test between treatments and control. It was also observed an inhibition of cell migration, by the Wound Healing assay, by the crude extract and fractions I, II, III at concentrations of 20 μg/mL and 40 μg/mL, and the fraction IV at a concentration of 40 μg/mL. The same was observed with Boyden’s assay, with exception of fraction II and fraction IV at concentration of 20 μg/mL. These preliminary results suggest that the anti-inflammatory effect of the plant P. polygalaeflorus seems to involve inhibition of cell migration.

Key words: Inflammation; Cell migration; Pterodon polygalaeflorus.