Screening of anti-inflammatory activity of subfractions from *Echinodorus macrophyllus* (Kunth.) Mich (Alismataceae)

Silva, G. P.1, Fernandes, D. C1, Santos, M. S.1, Vigliano, M. V1, Pinto, F. A1, Sabino, K.C.C., Coelho, M.G.P1.

DBq – IBRAG - UERJ, RJ, Brasil.

**Introduction:** Immunoregulatory effects of *Echinodorus macrophyllus* (Kunth.) Mich (Alismataceae) aqueous extract and this ethanolic fraction (Fr20) were previously described by our group. Now, our aim was to evaluate the anti-inflammatory effects of Fr20 subfractions.

**Methods:** *In vitro* NO production by RAW 264.7 macrophages was performed determining NO\(^{-}\) in the supernatant of cell pre-incubated or not with samples. To *in vivo* evaluation, was used air pouch model where each group (SW mice, 25-35 g, n=4) received intraperitoneal (i.p.) treatment with SF1, SF2 or SF3 at 2.5, 25, 50 or 100 mg/kg, dexamethasone (1 mg/kg) or vehicle (saline) (approved by CEA-IBRAG Committee - protocol 05/2009). Results were expressed as mean ± SD and compared using ANOVA followed Dunnet's test.

**Results:** We tested the subfractions SF1, SF2 and SF3 (yielding of 23.5%, 30.7% and 19.9%, respectively). The treatment with SF1 and SF3 inhibited the LPS-induced NO production. SF3 induced the maximal inhibition of 57.4% (25.8±5.7 µM) at 100 µg/ml, while SF1 induced lower effect (23.5%, 46.4±10.3 µM at 100 µg/ml), compared to control culture (60.6±11.5 µM). The treatment with SF2 showed no significant effect. In the air pouch model the carrageenan 1% increased both the cell migration and the exudate protein level in the vehicle group. The treatment with SF1, mainly, and with SF3, but not SF2, inhibited the inflammatory response. The following inhibition indexes of cell migration were observed: SF1 (77.3%, 85.5% and 90.5% at 25, 50 and 100 mg/kg respectively), SF3 (53.0%, 54.2% and 49.1% at 25, 50 and 100 mg/kg, respectively) and dexamethasone (72.8%). SF1 also reduced the total protein level in exudates, mainly at 50 mg/kg, showing 0.5±0.3, when compared to vehicle group and dexamethasone (12.1±1.4 mg/ml and 3.6±0.2 mg/ml, respectively).

**Conclusion/discussion:** We showed that subfractions obtained from Fr20, mainly SF1, was effective to ensure the anti-inflammatory effects observed with *E. macrophyllus*. However, more studies should be conducted to clarify the molecular mechanisms related to these effects.

**Support:** FAPERJ, CNPq and UERJ.