

**Introduction:** *Caryocar coriaceum* Wittm (Caryocaraceae) is a tree popularly known in the Brazilian Northeast as “Pequi”. Fixed oil from fruits of *C. coriaceum* (FOCC) has been extensively used in folk medicine for the treatment of cutaneous and systemic inflammatory diseases. However, there are limited search for the topical anti-inflammatory effect. Dermatitis are multifactorial diseases where inflammatory response has a central role, and the actual pharmacotherapy for the treatment of it has not been effective or have limitations. So, the aim of the present study was to evaluate the anti-inflammatory effect of FOCC in an experimental model of irritant contact dermatitis induced by 12-O-tetradecanoylphorbol-13-acetate (TPA) in mice. **Methods:** The FOCC was obtained by mechanical extraction under discontinuous hydraulic pressing and characterized by GC/MS and CG-FID. The study was approved by the Ethics Committee on Animal Use of the Federal University of Ceará (4876091118). The Swiss mice (20-30g) were treated with FOCC (100, 200 and 400 mg/kg, p.o.), aqueous solution of DMSO 1% (control group) or dexamethasone (standard drug, 1mg/kg, p.o.) 1 hour before the administration of TPA (2.5 µg/ear-10 µl). Ear thickness was recorded before and 4 hours after TPA administration using a digital caliper. The animals were sacrificed, and ear tissue homogenate were prepared and used for the determination of myeloperoxidase (MPO) activity and cytokine levels (TNF-α and IL-10). Statistical analysis was performed (GraphPadPrism 6.0-USA) and the results are expressed as mean ± S.E.M. The comparison between the means was performed using analysis of variance (ANOVA) followed by Tukey’s test (p <0.05). **Results:** Chemical analysis of FOCC identified ten fatty acids being 60.6 % of unsaturated fatty acids and 39 % saturated fatty acids. The oleic and palmitic acids are the majoritary constituents. Oral pretreatment of mice with FOCC (200 and 400 mg/kg) significantly reduced the ear edema (61% and 64% inhibition, respectively) induced by TPA when related to control group. The administration of TPA significantly increased MPO activity (1.29 ± 0.1) when related to untreated group (0.21 ± 0,05), and this effect was significantly reduced by of OFCC

( $0.33 \pm 0.1$ ). In addition, the FOCC suppressed the TNF $\alpha$  levels ( $77.61 \pm 5.7$  pg/mL) when related to TPA treated group ( $121.8 \pm 7.7$  pg/mL) and prevented the increase of the IL-10 levels ( $102.3 \pm 7.0$  pg/mL) similar to dexamethasone group ( $108.8 \pm 13,1$  pg/mL). **Conclusion:** This is the first experimental study which determined the cutaneous anti-inflammatory activity of FOCC in irritant contact dermatitis model in mice. The FOCC showed an antiedematogenic effect acting in the accumulation of leukocyte and modulating the pro- and anti-inflammatory cytokines levels. These findings suggest that FOCC is a promising bioactive fixed oil being good candidates for drug development for the treatment of cutaneous inflammatory diseases.