Antinociceptive and anti-inflammatory activity of methanolic extract (MECS) and flavonoids from *Cleome spinosa* Jacq (St. hil.)

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**Key words:** inflammation; *C. spinosa*; flavonoid

**Introduction:** *C. spinosa* (mussambê) is popularly used to treat pain and inflammatory diseases. This study investigated in vivo antinociceptive and anti-inflammatory activity after oral administration in groups (n=9) of mice (Swiss) of MECS (1g/kg) or flavonoids (FV) compounds: Fᴬ and Fᴮ (2mg/kg) as well as its mechanisms. **Experimental part:** Ethics commission (protocol n°3404 COMEP/UFRRJ). Formalin test (n=10): 1h after mice treatments with MECS, Fᴬ, Fᴮ, indomethacin (IN) or morphine (10mg/kg), formalin (3%; intraplantar) was injected and the time of reaction (1ˢᵗ and 2ⁿᵈ phases) was evaluated. Paw edema test (n=8): carrageenan (CG, 1%; intraplantar) was injected 1h after treatments with Fᴬ, Fᴮ or IN (10mg/kg) and the paw edema was evaluated after 1h. Pleurisy test (n=8): after 1 hour of mice treatments with MECS, Fᴬ, Fᴮ or dexamethasone (2mg/kg, s.c.), the pleurisy was induced (CG, 1%, intrapleural), and after 4 hours leukocytes (LK) were counted. ELISA evaluations: the TNFα concentration (ex vivo - pleural lavage), COX-1 and 2 activity (in vitro) and PLA₂ activity (agarose plate method). The results were analyzed by ANOVA and t test or Tukey. **Results:** MECS inhibited the 1ˢᵗ (60.8%) and 2ⁿᵈ (81.5%) phases of nociception in the formalin test; reduced LK migration (37.1%) and formation of TNF-α (29.8%) in pleurisy test. FV inhibited the 2ⁿᵈ phase of nociception (Fᴬ=51.4%; Fᴮ=38.7%), LK migration (Fᴬ=42.7%; Fᴮ=39.0%), edema formation (Fᴬ=47.1%; Fᴮ=43.7%) and TNF-α concentration (Fᴬ=8.5%; Fᴮ=11.5%). Both FV (6.75 to 200µg/mL) reduced COX-1 (IC⁵₀: Fᴬ=191.1µg/mL; Fᴮ=145.4µg/mL) and COX-2 activity (IC⁵₀: Fᴬ=56.1µg/mL; Fᴮ=351.6µg/mL), and were able to inhibit PLA₂ activity (Fᴬ=16.7%; Fᴮ=34.6%). **Conclusions:** The MECS and FV antinociceptive, antiedematogenic and inhibitory LK migration activities involve anti-inflammatory mechanisms, with inhibition of enzymes and pro-inflammatory mediators such as TNF-α. These results could explain some popular indications of *C. spinosa*.

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