Sulfated polysaccharide from red seaweed *Solieria filiformis* induces Cyclo-oxigenase-2 gene expression in temporomandibular arthritis in rats

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The sulfated polysaccharides from seaweed *Solieria filiformis* have been described to have important pharmacological properties, but the role of these molecules is not elucidated. This study aimed to investigate the effects of a sulfated polysaccharide this specie (SP-Sf) on the leukocyte influx and Cyclo-oxigenase-2 gene expression in model of zymosan-induced arthritis in temporomandibular joint (TMJ) in rats. SP-Sf was extracted by enzymatic digestion, followed by ion exchange chromatography (DEAE-cellulose). We used male Wistar rats (180-220g) (CEPA 80/10). Animals were treated with SP-Sf (1, 3 or 9 mg/kg, s.c.) 1 hour before induction of arthritis by zymosan (2 mg/40µL, i.art.) into left TMJ of rats. Control group received only saline (i.art.). At 6th hour, the rats were euthanized and synovial fluid was collected for leukocyte count and TMJ was removed for RNA extraction with TRIzol® reagent. Furthermore, cDNA was synthesized by superscript®III reverse transcript. The specifics primer pairs were designed only to sequences of *Rattus norvegicus* in exon-exon junction. In addition, the efficiency and the best conditions of the primer pairs were determined. Cyclo-oxigenase-2 (COX-2) gene expression was analyzed by QT-PCR and normalized with glyceraldehyde-3-phosphate dehydrogenase. The results showed that SP-Sf no reduced significantly the number of leukocytes in comparison zymosan group. COX-2 mRNA was up-regulated (p<0.001) in group treated with SP-Sf (1mg/kg, s.c.) compared to saline and zymosan groups. Thus, our data indicate for first time that SP-Sf increases COX-2 gene expression and did not alter leukocyte influx in zymosan-induced arthritis in TMJ of rats.


Supported by: FUNCAP, CNPq, MCT, MS and CAPES.