Abstract

Inflammatory pulpal pain may arise due to the increased pressure inside the pulp or the release of prostaglandin E₂ (PGE₂). In the inflamed pulp, levels of PGE₂ and substance P (SP) is higher than those of normal pulp. PGE₂ sensitizes all nociceptor while SP can induce the activity of cyclooxygenase-2 (COX-2) and is an excitatory neurotransmitter. Jatropha curcas Linn latex is widely used for pulpal pain relief. The aim of this study was to evaluate the effect of the latex and extract of J. curcas on the dental pulp expression of COX-2 and SP. Thirty-six pulpitis-induced dental pulp of Macaca fascicularis, were divided into 3 groups: Group 1 served as controls, Group 2 was given latex, and Group 3 was given extracts. The ELISA assay was used to determine the levels of SP and COX-2. SP data was analyzed with ANOVA (p <0.05) while the COX-2 data was analyzed with Mann Whitney. The results showed that the levels of SP (pg/mL) of the control, latex, and extract group were 28.94; 26.22; 28.89 respectively, while levels of COX-2 (ng/ml) of control, latex, and extract group were 0.04; 0.08; 0.10 respectively. In conclusion, J. curcas can reduce the levels of SP, J. curcas latex has lower levels of SP than extract, but does not provide clear results in decreased levels of COX-2. Further study requires the mechanism of SP, and the concentration of COX-2 needs to be further investigated using different methods.

Key words: Jatropha curcas, substance P, cyclooxygenase-2