Para methoxy cinnamic acid (PMCA), a hydrolyzed product of ethyl p-methoxycinnamic (EPMC) has been shown to have anti-inflammatory activity. In order to find innovative ways for administering APMS, alternative delivery system such as nanoemulsion has been developed. The aim of this study was to observe topical anti-inflammatory effectivity of PMCA-nanoemulsion prior to the addition of chitosan as thickening agent in various concentration. During this study, concentration that was being used were without chitosan 0% (Formula I), chitosan 0.05% (Formula II), chitosan 0.15% (Formula III) and chitosan 0.3% (Formula IV). Their effectiveness were evaluated using croton oil-induced inflammation in mice ears by histological examinations. Anti-inflammatory effectiveness were evaluated as a parameter of skin thickness and inflammatory cell infiltration (only by visual determination). According to the histological examination induced by croton oil, the result showed that topically applied of PMCA – nanoemulsion in mice ear significantly decreased skin thickness and inflammatory cell infiltration compared to positive control. Meanwhile, the addition of chitosan up to 0.3% to the formulation didn’t give significant difference of effectivity. It can be concluded that PMCA-nanoemulsion with addition of chitosan up to 0.3% was able to act as topical antiinflammatory.

Keywords: p-methoxycinnamic acid, chitosan, nanoemulsion, topical antiinflammatory, croton oil, skin histology