

**ABSTRACT**

**EFFECT OF PEG 400 ON ELASTICITY OF SCAFFOLD OF DICLOFENAC SODIUM WITH CHIITOSAN GELATIN MATRIX**

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Background: Scaffold is a biomaterial polymer helps for cell attachment and cell tissue development structurally. PEG 400 is one of the polymers that can be used to increase the elasticity of *scaffold*, because the PEG 400 can coat the bonds of chitosan-glutaraldehyde and chitosan-gelatin. Elasticity has an important role in scaffold to help regenerate cartilage faster and reduce friction of cartilage with surrounding bones that are in the process of regeneration, so that the PEG 400 concentration is optimized to find optimal PEG 400 concentration in the scaffold of diclofenac sodium with chitosan gelatin matrix. Research Method: Scaffold of diclofenac sodium was made with PEG 400 at concentrations of 0.5%, 1.0%, 3.0%, 5.0% with chitosan and gelatin matrix crosslinked with glutaraldehyde. The scaffold was dried using freeze drying. Scaffold of diclofenac sodium with chitosan gelatin matrix was tested using autograph and observed stress, strain, stress-strain curves, and elastic modulus. Result: The increase of PEG 400 concentration can improve elasticity of scaffold and optimal elasticity occurs at 1,0%. On the stress-strain curve illustrates that scaffold of diclofenac sodium with chitosan-gelatin has elastic character, perfectly plastic. Conclusion: The existence of PEG 400 can influence scaffold elasticity, thus it can be used as scaffold plasticizer of diclofenac sodium with chitosan-gelatin matrix.

**Keyword** : Chitosan, Diclofenac Sodium, Elasticity, Gelatin, PEG 400, Scaffold