

**ABSTRACT****The Effect of Surfactant Modification on The Release Profile of EGCG From  $\kappa$ -Carageenan and HPMC K100M-Based Ovule**

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*Epigallocatechin gallate* (EGCG) is an anti-cervical cancer polyphenol found in green tea that has a low lipophilicity, easily degraded at high temperatures and at pH 6.8. The addition of Tween 80 and Span 80 as non-ionic surfactants has been shown to increase the lipophilicity of EGCG and its become modified. The purpose of this study is to comparing the release of modified EGCG with unmodified EGCG on HPMC K100M and  $\kappa$ -carrageenan-based ovule. Physical characteristics showed that pH of unmodified and modified EGCG ovule were  $4.244 \pm 0.009$  and  $4.233 \pm 0.0616$ . Swelling index of unmodified and modified EGCG ovule were  $2.946 \pm 0.538$  and  $1.465 \pm 0.195$ . Disintegration time of unmodified and modified EGCG ovules took 60 minutes and 290 minutes to be completely disintegrated. The results of weight diversity both for unmodified and modified EGCG ovules didn't deviate more than 15% (column A) and more than 30% (column B). Unmodified and modified EGCG ovule had an average hardness of  $49.762 \text{ kg} \pm 0.107$  and  $49.741 \text{ kg} \pm 0.043$ . Drug Loading results for unmodified and modified EGCG ovule were  $0.884 \pm 0.065$  and  $1.146 \pm 0.059$ . The release kinetics of unmodified EGCG ovule followed Higuchi model and modified EGCG ovule followed Korsmeyer-Peppas model with Fickian mechanism. The release rate of unmodified EGCG ovules was  $1.4373 \pm 0.0731$  and the release rate of modified EGCG ovules was  $2.4070 \pm 0.0291$ . The result showed that modified EGCG doesn't decrease the release rate of EGCG on HPMC and  $\kappa$ -carrageenan-based ovule.

**Keywords:** *Epigallocatechin gallate* (EGCG), HPMC,  $\kappa$ -carageenan, surfactants, release profile.