



## Free Films Containing Acrylic Polymer and $\beta$ -Cyclodextrin as Potential Material for Colonic Delivery: Permeability, Swelling Property, and Physicochemical Analyses

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**SUMMARY.** This work evaluated the influence of  $\beta$ -cyclodextrin ( $\beta$ -CD) on Eudragit® FS 30 D (FS) free film-forming capacity in the following blends: 90:10 and 95:5 (FS:  $\beta$ -CD) as material for potential application in colonic drug delivery systems. A control film (FS 100 %) was also prepared. Determination of swelling index ( $I_s\%$ ) and permeability and physicochemical analysis were carried out. Formulations containing 95:5 or 90:10 FS:  $\beta$ -CD ratio and about 5 % of glyceryl monostearate (GMS) as a glidant provided homogeneous, continuous, and flexible films. Water vapour transmission (WVT) increased with an increase in  $\beta$ -CD concentration. On the other hand, how major was the  $\beta$ -CD amount lower was found the  $I_s\%$  for the film. Physicochemical analysis using TG revealed an initial thermal decomposition temperature shift that indicated lower thermal stability for films with 90:10 or 95:5 FS:  $\beta$ -CD ratio compared with the control (100:0). The results of FT-IR did not give evidence of any intermolecular interaction between  $\beta$ -CD and the acrylic polymer, showing just a physical mixture of both components in formulation.

**KEY WORDS:**  $\beta$ -cyclodextrin, Eudragit® FS 30 D, free film

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