Supplementary Information (SI) for RSC Advances.

***Title*:** Doxorubicin loaded Chitosan-Poloxamer in-situ implant for the treatment of breast cancer

Supplementary information

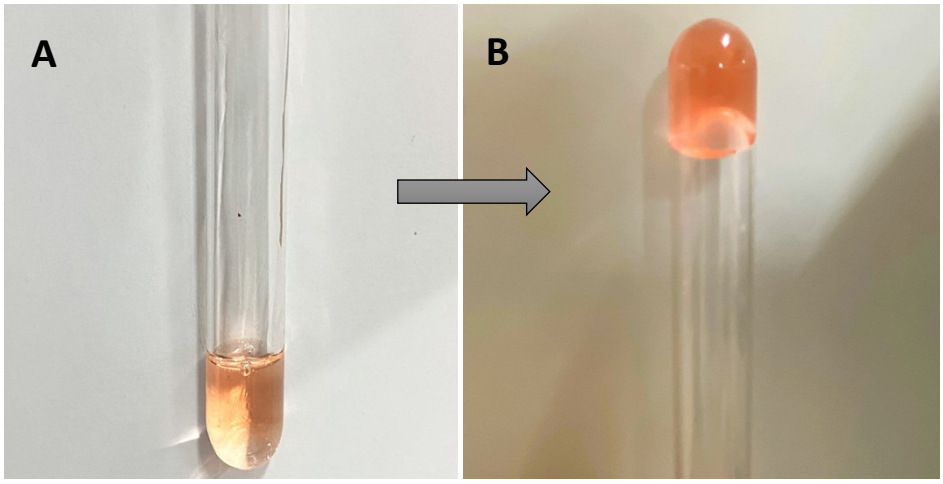

Fig. S1 Photographs of DOX-CH-PO ISI of optimized formulation **(A)** The sol state (25ºC) **(B)** the gel state (37ºC)

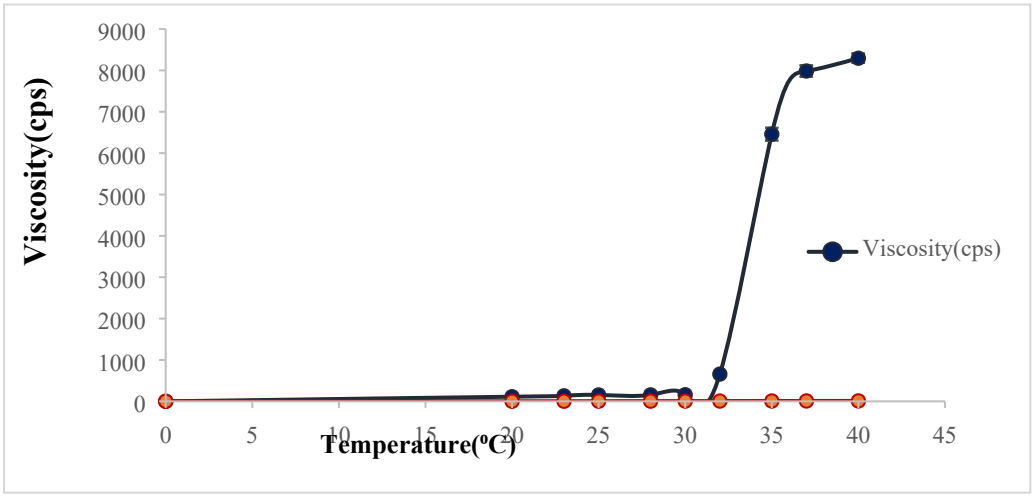

Fig. S2 Viscosities of DOX-CH-PO ISI at different temperatures

Release Kinetics

The drug release pattern of DOX-CH-PO tested with different kinetic models is stated in Table S1. The optimized formulation at pH 7.7 followed the Korsmeyer-Peppas model with an R^2 value of 0.956. Based on this analysis, we have determined that the formulation of DOX-CH-PO ISI demonstrated super case II type transport. At pH 5.5, the optimized formulation shows the Higuchi model with an R^2 value of 0.8503 depicting the drug release occurs via diffusion process. The combination of chitosan and poloxamer 407 forming an insoluble rigid matrix is the cause of this release behavior (Gratieri et al.,2011).

Table S1 Kinetic model of formulation

Sample	**Zero-order**	**First order**	**Higuchi**	**Korsmeyer-Peppas**
	R^2	**R^2**	**R^2**	**R^2**
DOX-CH-PO @7.4	0.8746	0.9287	0.9341	0.956
DOX-CH-PO @5.5	0.6026	0.7494	0.8503	0.6815

Reference

1) Gratieri T, Gelfuso GM, de Freitas O, Rocha EM, Lopez RF. Enhancing and sustaining the topical ocular delivery of fluconazole using chitosan solution and poloxamer/chitosan in situ forming gel. European journal of pharmaceutics and biopharmaceutics. 2011 Oct 1;79(2):320-7.