Supplementary information

Compatibility studies

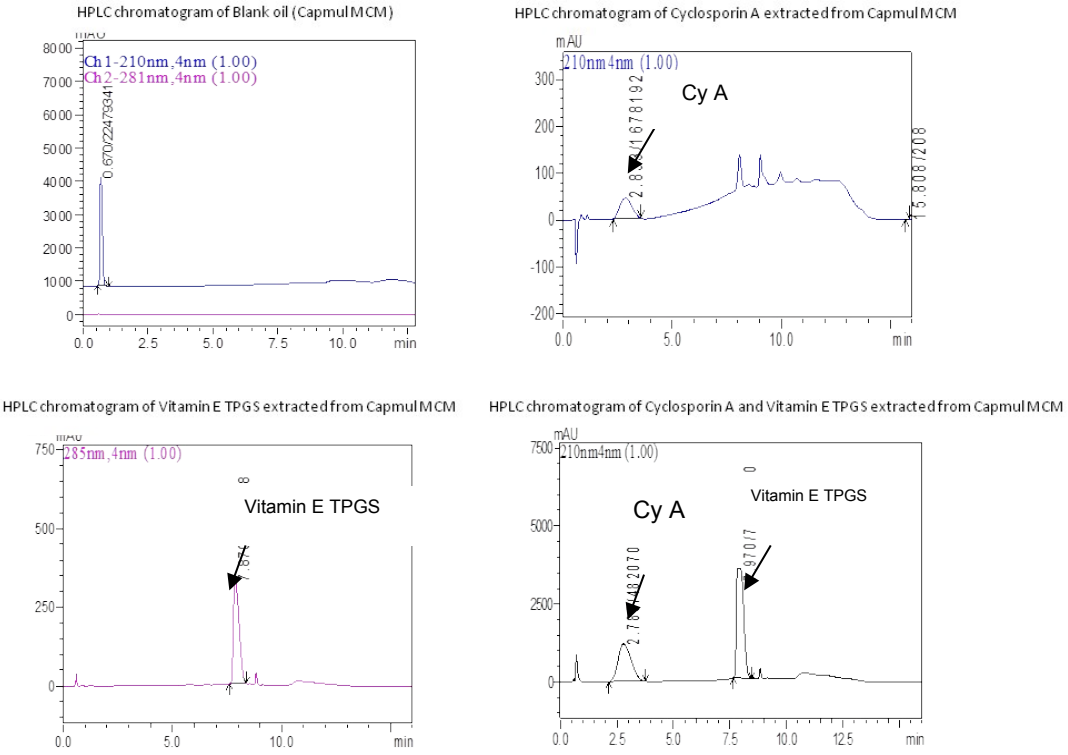

Figure S1: HPLC chromatogram of different samples after compatibility studies

Solubility of CyA in surfactant solution

Solubility studies of CyA were also performed in aqueous solution of 10% surfactants as shown in **Figure**.

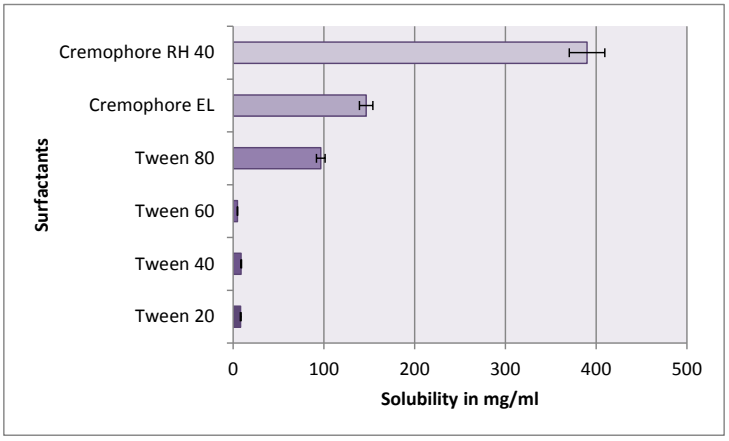

Figure S2. Solubility of CyA in 10% Surfactants; Each data point represents mean ± S.D. (n=6)

Effect of Cyclosporin A and vitamin E TPGS on ternary phase diagram of selected system

Effect of Cyclosporin A on ternary phase diagrams of the selected system

The drugs as well as pH of the vehicle have considerable influence on the phase behaviour of the spontaneously emulsifying systems. The effect of CyA on the phase behaviour and area of nanoemulsion formation was studied. Due to the high solubility of CyA in Capmul MCM, a particular quantity of CyA (25 mg/gm of formulation) was taken and various compositions were prepared and characterized. The mean globule size of the resulting dispersions was measured by using Zetasizer at 25˚C and the data obtained was used to identify the area of nanoemulsion formation.

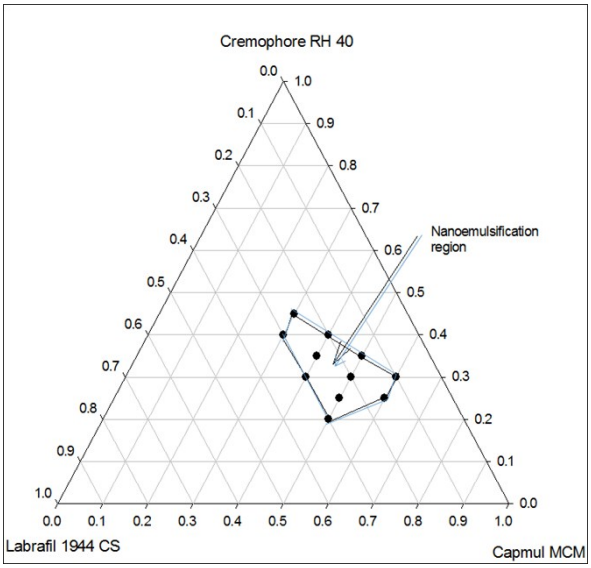

Figure S3: Effect of CyA on ternary phase diagram of the selected system

Effect of simultaneous loading of Cyclosporin A and vitamin E TPGS on ternary phase diagram

In order to study the effect of simultaneous loading of CyA and vitamin E TPGS loading on the droplet size, the amount of CyA was fixed (25mg/gm formulation). The loading of vitamin E TPGS in the formulation was varied (20-200 mg/gm of formulation). Formulations with various compositions containing CyA and vitamin E TPGS were prepared. The mean globule size and PDI of the resultant nano emulsions were measured by zeta sizer at 25ºC and the self-emulsification region was investigated by plotting onto the pseudoternary phase diagram.

Table S1. Effect of Vitamin E TPGS loading on the quality attributes of representative SNEDDS*

Oil-	20 mg/gm formulation	40 mg/gm formulation	80 mg/gm formulation	200 mg/gm formulation

surfactant-cosurfactant ratio												
	Size	**PDI**	**%T**	**Size**	**PDI**	**%T**	**Size**	**PDI**	**%T**	**Size**	**PDI**	**%T**
50-35-15%	27.2± 5.27	0.096± 0.189	83.36± 10.27	26.03± 6.48	0.055± 0.257	84.91± 12.08	60.01± 5.78	0.141± 0.205	93.32± 15.48	239.3± 6.84	0.354± 0.542	86.09± 3.26
50-30-20%	30.99± 7.85	0.088± 0.259	60.81± 7.45	33.28± 5.87	0.151± 0.485	87.29± 8.80	33.97± 4.27	0.295± 0.054	85.11± 9.87	237.3± 7.24	0.438± 0.028	85.31± 2.63
40-40-20%	26.01± 2.68	0.144± 0.197	66.68± 6.27	37.36± 8.26	0.283± 0.284	81.28± 7.27	22.62± 7.48	0.12±0. 186	89.53± 4.26	76.45± 3.47	0.246± 0.3456	87.9± 4.95
40-30-30%	31.67± 3.44	0.079± 0.152	86.29± 14.76	283.7± 4.43	0.435± 0.179	82.9±1 6.47	31.41± 8.46	0.223± 0.247	88.88± 5.24	27.29± 2.48	0.328± 0.094	87.7± .36

***Amount of CyA was fixed as 25 mg/gm of formulation**
Values are expressed as mean ± S.D. (n=6)

Table S2. HPLC method parameters for *in vitro* sample analysis

Column	Nucleosil ®50 Symmetry RP-18 endcapped (5µm)
Mobile Phase	Acetonitrile : Water : Ethanol-30:40:30
Elution	Low Pressure gradient
Flow Rate	1 ml/min
Retention Time	2.8 min for CyA and 7.81 min for vitamin E TPGS
Run Time	16.0 min
Column Temp.	50 ^{0}C
Pressure	500-800 psi
λ_{max}	210 nm for CyA and 285 nm for vitamin E TPGS
Injection Volume	20 µl

Table S3: HPLC method validation parameters for Cyclosporin A

Parameter	**Value**
Range	5-500 µg/ml
Linearity	0.9991±0.001041
LOD	0.5776
LOQ	1.764
Slope	47194.5±103.8
Intercept	29025±182.24

Values are expressed as mean ± S.D. (n=6)

Table S4. HPLC method validation parameters for vitamin E TPGS

Parameter	**Value**
Range	5-500 µg/ml
Linearity	0.99888±0.0009
LOD	0.6743
LOQ	1.8967
Slope	789.895±94.819
Intercept	928.393±83.014

Values are expressed as mean ± S.D. (n=6)