On increasing the concentration of poloxamer 407, the particle size was found to decrease. This might be due to the surfactant-induced reduction in surface tension between aqueous phase and organic phase. In addition, surfactant helps to stabilize the newly generated surfaces and prevents particle aggregation.

The Entrapment Efficiency ranged from 60.55% – 92.70% which indicated that increase in amount of glyceryl monostearate also increased the entrapment efficiency of drug because of the increased concentration of mono-, di-, and triglycerides which act as solubilizing agents for highly lipophilic drug and provide a less ordered solid lipid matrix and left enough space to accommodate drug molecules. The Entrapment Efficiency was decreased with increasing concentration of surfactant in aqueous phase because of the well-known fact that the aqueous solubility of drug increases with increase in surfactant concentration Fig 4.

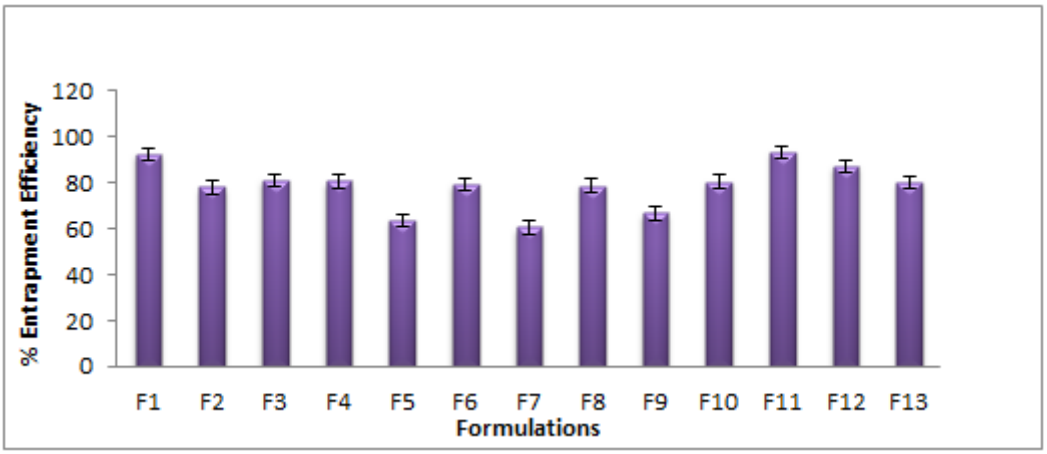

Fig 4: Entrapment Efficiency of different formulations

The release profile of ketoprofen loaded solid lipid nanoparticle showed the cumulative drug release from 39.84% – 67.08% over a period of 12 hrs (Fig 5 and Fig 6).

Table 4: Particle size, zeta potential and Polydispersity Index different formulations of Solid lipid nanoparticle

Formu -lation	Average Diameter (nm)	Polydispersity Index	Zeta Potential (mV)
F1	385.8	0.467	-15.1
F2	305.0	0.131	-11.9
F3	348.8	0.125	-17.6
F4	356.7	0.136	-2.21
F5	101.8	0.201	-11.1
F6	326.8	0.466	-8.49
F7	224.6	0.076	-14.4
F8	273.5	0.178	-4.65
F9	207.8	0.007	-15.7
F10	241.9	0.078	-
F11	425.9	0.269	-1.64
F12	427.0	0.239	-4.65
F13	263.4	0.149	-

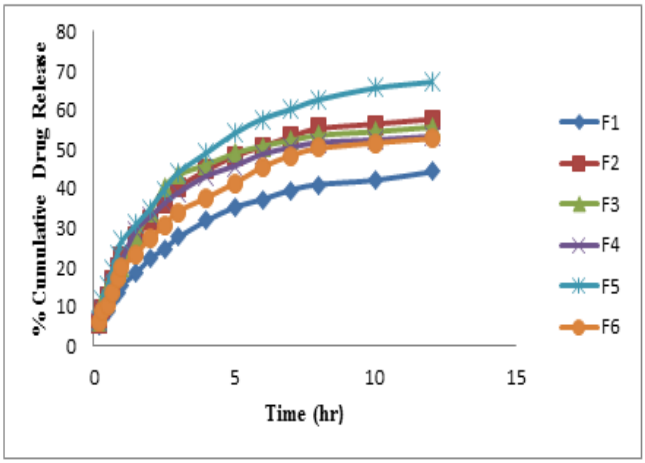

Fig 5: *In vitro* drug release profile of F1-F6

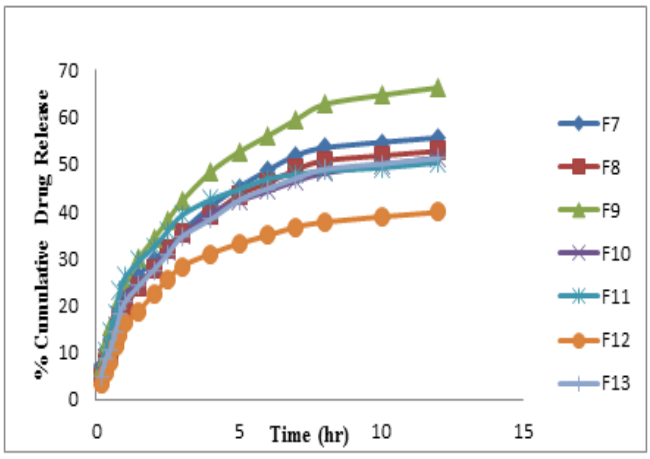

Fig 6: *In vitro* drug release profile of F6-F13