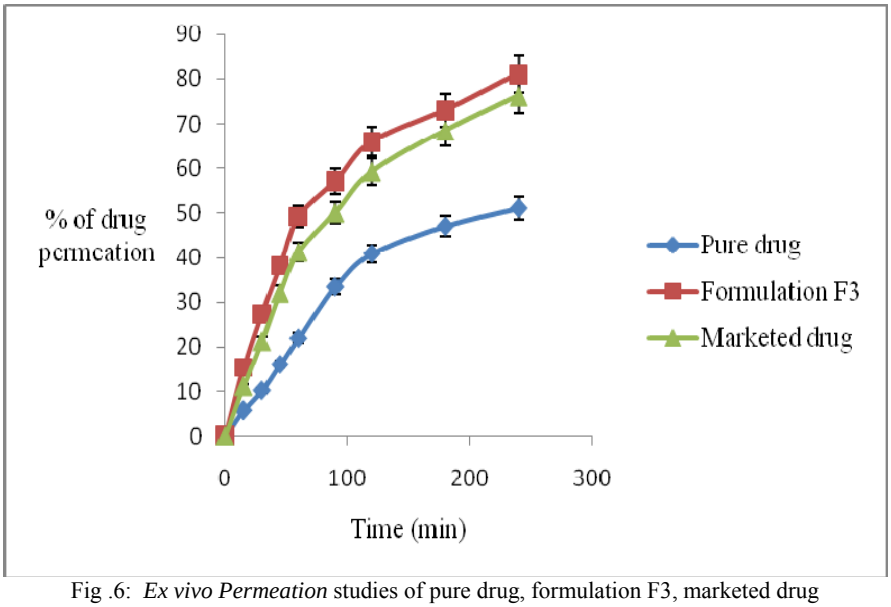

Fig .6: *Ex vivo Permeation* studies of pure drug, formulation F3, marketed drug

***In vitro* dissolution study of pure drug**

Dissolution study of pure drug was carried out in 0.1N HCL and 7.4 P^H phosphate buffer. % drug dissolved at various time intervals and graph was plotted shown in fig.3. It was observed that the pure drug was dissolved rapidly in 0.1 N HCL than the 7.4 P^H phosphate buffer This might be due to the basic nature of pure drug naproxen.

***In vitro* drug release**

In vitro drug release studies of all the prepared LBSD's of naproxen were carried out in 0.1 N HCL and the % of drug release was calculated at various time intervals up to 2h. Graph was plotted and showed in fig.4. I t was observed from the study the ratios of the gelucire increasing the drug dissolution rate was also increased. And it was found that formulation prepared with gelucire 50/13 have shown faster drug release than the formulations prepared with gelucire 44/14.

Comparative *in Vitro* Drug Release of Pure Drug, Marketed and Selected F3 formulation

Comparative dissolution was performed to the pure drug, marketed formulation (Inspra) and best formulation F3. The % of drug dissolved at 120 minutes was calculated. The % of drug dissolved at 2h was 80.38±1.6, 85.2±2.9, 99.05±2.19 for pure drug, marketed formulation and F3 formulation respectively. Graph is shown in fig.5. Hence it can be concluded that the dissolution rate is increased from LBSD's.

***Ex vivo* permeation studies**

Goat intestine was taken from the slaughter house. It was rinsed with Krebs-Ringer solution to remove the mucus and adhered intestinal contents. One end of the intestine segment was tied and fixed to the open tube. The pure drug, marketed drug inspra and selected formulation equivalent to 25 mg of drug was introduced into the lumen and was tightly closed. The tissue was placed in an organ bath with continuous aeration and maintained at a temperature of 37ºC. The receptor compartment consists of 50 ml of 7.4 pH Phosphate buffer. Samples were collected at regular time intervals and replaced with equal volume with 7.4 pH phosphate buffer for maintaining sink condition and the samples were filtered through 0.45 mm and quantified using uv-spectroscopy.

Study was conducted for 4 hr the % of drug permeated through ileum was

Pure drug – 51.198±1.9
Marketed product – 76.250±0.256
F3 formulation - 81.09±2.10

The graph was plotted time on x-axis vs % of drug permeated on y-axis. Fig.6: showed formulation F3 was better drug permeation than the pure drug and marketed product.

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