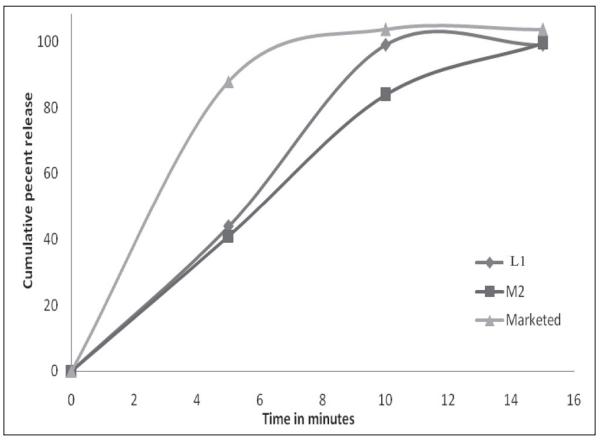

Figure 4: Comparsion of dissolution profile of L1, M2 and marketed formulation

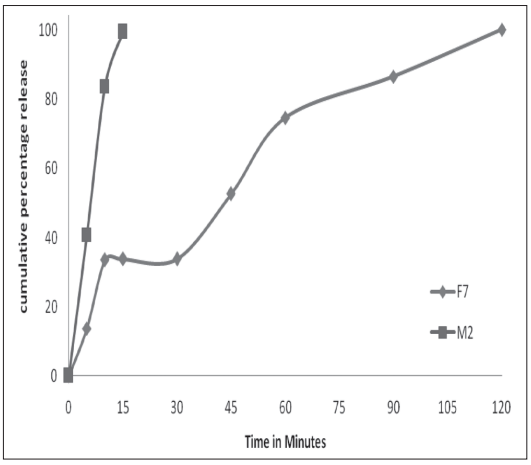

Figure 5: Dissolution profile of polypill formulation

Table 6: Evaluation of metoclopramide tablets

Formulation	*Weight variation (%)	*Hardness (Kg/cm²)	*Friability (%)	*Disintegration time (min)	*Drug content (%)
L1	5.87±0.085	2.38±0.152	0.356±0.0751	4.50±0.570	100.60±0.33
L2	5.21±0.052	2.16±0.152	0.804±0.0744	3.37±0.755	100.03±0.23
L3	6.52±0.045	2.26±0.115	0.792±0.1123	4.00±0.810	99.86±0.15
M1	6.48±0.022	4.26±0.115	0.299±0.0002	5.35±0.395	100.63±1.78
M2	6.52±0.036	4.13±0.115	0.178±0.0003	6.01±0.407	100.12±0.98
M3	6.56±0.56	4.31±0.115	0.096±0.0002	6.49±0.277	99.44±1.19

*Average of three determinations

Table 7: Stability studies of prepared capsule

Sampling interval	% Drug content metoclopramide	% Drug content mercaptopurine	Physical appearance
Initial	100.06	97.86	Characteristic capsule property
1 month	99.54	96.98	No change
2 months	99.26	95.83	No change
3 months	98.21	95.67	No change

complete release of drug in 10 min. M2 was further found to be the best among all formulations.

The disintegration time of polypill was 6.22 min which was most ideal for the proposed formulations. The dissolution profile indicated immediate release of antiemetic metoclopramide within 15 min, whereas the release of anticancer 6-mercaptopurine commenced slowly only after 5 min of time gap as shown in Figure 5. This pattern of release fulfils the immediate release requirement of metoclopramide followed by delayed release of anticancer.

Accelerated stability studies (40 ± 2°C / 75% RH) performed for a period of 3 months and capsules were checked for physical appearance, drug content, and dissolution profile. All the capsules showed no change in physical appearance. There was no noticeable change in drug content and dissolution profile of capsules at the end of 3 months, indicating that the prepared capsules were stable [Table 7].

CONCLUSION

It may be concluded that polypill released the metoclopramide immediately prior to anticancer. Thus, the formulation with immediate release mucoadhesive metoclopramide and delayed release 6-mercaptopurine may be useful as a combination in a polypill. Further, *ex vivo* investigations may prove the possibility of this polypill in reducing orally administered anticancer-induced emesis.

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