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NEW FORMULATION AND EVALUATION OF DOMPERIDONE SUSPENSION

[1] Saritha Chukka, [1]Shankaraiah Puligilla, Madhusudan Rao Yamsani*

*Department of Pharmaceutics, University College of pharmaceutical Sciences, Kakatiya University, Warangal, A.P., India.

[1]Chaitanya College of Pharmacy Education and research. Kishanpura, Hanamkonda, Kakatiya University, Warangal, A.P., India.

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***Correspondence for Author:**
Prof. Dr. Y. Madhusudan Rao,
Professor, Department of Pharmaceutics, University College of Pharmaceutical Sciences, Kakatiya University, Warangal, AP, INDIA.

ABSTRACT

Objective of the work was carried out the formulation and evaluation of Domperidone suspension. methods: new formulations were made with the flocculated and deflocculated the domperidone drug suspension with different flocculating agents of $AlCl_2$, $Cacl_2$ and used SLS(formulation code DS1-DS10), HPMC (deflocculating), Sod.CMC(formulation code DN1-DN10) as suspending agents, performed the conductivity studies , stability studies for 6 months, influence of ageing and natural ageing on sedimentation volume, pH, Conductivity and dissolution rate were assessed, Results: results were obtained depending on the concentration of flocculating & suspending agents there was increased sedimentation volume, Conductivity but there is no change on pH, dissolution rate is increased. Conclusion: concluded that the based on the sedimentation volume, rate of settling, ease of redispersibility and optimum release, DN8 & DS10 formulations were selected as best formulations and compared with marketed product Domperidone suspension.

Keywords: Domperidone, flocculating agents, deflocculating agents, dissolution, sedimentation volume, redispersibility.

INTRODUCTION

A Suspension is pharmaceutical product in which it is a coarse dispersion as insoluble particles (1µm) are dispersed in a liquid aqueous medium (Attwood, 2007). The preparation of suspensions on a small scale, the powdered drug can be mixed with the suspending agent and some of the vehicle (Billany, 2007). Oral Suspension is comparatively quick to prepare and allow in dosage form (Brion et al., 2003). Based on the Noyes-Whitney equation, if the dispersed drug in the suspension has a large surface area then this will enhance dissolution and increase absorption (Attwood, 2007). The different dosages can be measured from a single strength of preparations (Brion et al., 2003). It has been stated that the suspensions were a very useful dosage forms for insoluble or poorly water-soluble drugs for oral administration (Ashford, 2007). However the physical, chemical and microbiological stability, Preparations for oral administration should include not more than 103 bacteria and not more than 102 fungi per gram or per millilitre (European Pharmacopoeia, 6.1, 2007). New guidelines on the standards required for the preparation of non-sterile liquids in healthcare establishments recommend using closed systems for processing and transferring to protect the product from contamination (Pharmaceutical Inspection Convention, 2008).

Sedimentation and redispersion of suspensions were the required amount of product sufficiently homogenous is must for at least the period between shakings (Billany, 2007; Marriott, 2007). In a suspension it requires low viscosity, for the adequately dispersion (Twitchell, 2007). There are two problems of the suspension includes the caking, sedimentation, the fluctuations of temperature on flocculation and particle growth that affect the solubility of the drugs (Billany, 2007; Florence and Attwood, 2006).There has be a balance between the attractive and repulsive forces influence on adhesion of suspension particles to container walls has also been noted as a problem, particularly in low-doses of drug products (Attwood, 2007).

The electrical repulsive forces with the small particles filling the voids between the larger particles, in a flocculated suspension will form loosely bonded sediments and loose open structures (Attwood, 2007; Billany 2007; Florence and Attwood, 2006). The supernatant in a flocculated system produces the risk of an inaccurate dose (Billany, 2007; Florence and Attwood, 2006). On the other hand, in a completely deflocculated system the particles are not associated. Pressure on the individual particles can lead to close packing of the particles to such an extent that the particles become irreversibly bound together to minimise the

sedimentation rate, cake formation, the most serious physical stability problem of suspensions, may occur due to the formation (Attwood, 2007; Billany, 2007; Florence and Attwood, 2006). This cannot be prevented by reduction of particle size or by increasing the viscosity of the continuous phase. (Attwood, 2007; Florence and Attwood, 2006). Flocculating agents can prevent cake formation but deflocculating agents increase the caking (Florence and Attwood, 2006).

The zeta potential of the particles can be measured to determine flocculating or deflocculating agents, viscous medium thus prevent the movement of the particles and sedimentation becomes delayed (Costello et al., 2007). The non-Newtonian pseudoplastic cellulose derivatives used as suspending agents may produce a deflocculated system, at low concentrations (Billany, 2007; Marriott, 2007). Hydrophilic colloids protect the solid hydrophobic particles thus important a hydrophilic characteristic which promotes wetting properties.

Domperidone is a dopamine-receptor blocking agent. Domperidone works primarily by blocking dopamine receptors found in an area of the brain known as the chemo receptor trigger zone (CTZ). The CTZ is activated by nerve messages from the stomach when an irritant is present. It is also activated directly by agents circulating in the blood, for example anti-cancer medicines. Once activated, it send messages to another area of the brain, the vomiting centre, which in turn sends messages to the gut, causing the vomiting reflex, Blocking the dopamine receptors in the CTZ prevents nausea messages from being sent to the vomiting centre. This reduces the sensation of nausea and prevents vomiting.

MATERIALS & METHODS

Chemicals: Domperidone (Gift sample from Zydus Cadila, Ahemadabad) Sod. CMC (S.D.Fine Chemicals, Mumbai), HPMC K4M (Dow chemical's, USA), Methyl cellulose (S.D.Fine Chemicals, Mumbai), Cacl2 (S.D.Fine Chemicals, Mumbai), Alcl3 (S.D.Fine Chemicals, Mumbai), SLS (S.D.Fine Chemicals, Mumbai). U.V.spectrophotometer (Elico pvt.ltd Hyderabad), Dissolution tester model DR-6(TAB Machines), Conductivity meter (Systronics, 302.), pH meter (Elico pvt ltd Hyderabad). Hot air oven (Tempo, New Delhi), Cyclo mixer (Remi equipment, Hyderabad.).

Preparation of suspensions: The following suspending agents used in this study include: Na.CMC (1%), HPMC (0.5%), MC (2%), SLS (10%)

General formula for suspension

Domperidone - 100mg, Suspending agent - 10ml, Flocculating agent - variable quantities (Cacl2 10%, Alcl3 10%), Water - up to 100ml.

Procedure: The weighed quantity of the drug dispersed in the solutions of surfactants or suspending agents of varies strengths. The mixture was agitated in a mixer at low speed, for 1min. To this mixer flocculating agent was added drop wise while mixing was continued. Finally the volume was made up with water.

Formulation coding: Domperidone suspensions were prepared using various suspending agents Na.CMC, MC, HPMC K4M, and SLS.

1. One system containing, 1%Na.CMC and CaCl2, formulations were coded as **DN** series from **DN1** to **DN10**, as with increasing amounts of flocculating agent **CaCl2.**
2. Another system containing 10% **SLS** and 10% **AlCl3**, formulations were coded as **DS** series from **DS1** to **DS10**, as with increasing amounts of flocculating agent **AlCl3**.
3. Deflocculated domperidone suspension formulations prepared with **2% MC** &**0.5%HPMC**, were coded as **DDM** &**DDH** respectively.
4. After incorporation of structured vehicle into best flocculated and deflocculated suspension formulations were code as **SFN8**, **SFS10**, **SDM** and **SDH**.

SFN8 = Structured vehicle flocculated suspension containing Na.CMC

SFS10 = Structured vehicle flocculated suspension containing SLS

SDM = Structured vehicle deflocculated suspension containing MC

SDH = Structured vehicle deflocculated suspension containing HPMC.

SUSPENSIONS WITH Na.CMC FORMULATION

F.NO	DRUG (DOMPERIDONE)	QTY OF 1%Na.CMC	QTY OF 10%CaCl2	QTY OF WATER
DN1	100mg	10ml	1ml	Up to 100ml
DN2	100mg	10ml	2 ml	Up to 100ml
DN3	100mg	10ml	3ml	Up to 100ml
DN4	100mg	10ml	4ml	Up to 100ml
DN5	100mg	10ml	5ml	Up to 100ml
DN6	100mg	10ml	6ml	Up to 100ml
DN7	100mg	10ml	7ml	Up to 100ml
DN8	100mg	10ml	8ml	Up to 100ml
DN9	100mg	10ml	9ml	Up to 100ml
DN10	100mg	10ml	10ml	Up to 100ml

SUSPENSIONS WITH SLS FORMULATION

F.NO	DRUG (DOMPERIDONE)	QTY OF 10%SLS	QTY OF 10%AlCl3	QTY OF WATER
DS1	100mg	10ml	1ml	Up to 100ml
DS2	100mg	10ml	2 ml	Up to 100ml
DS3	100mg	10ml	3ml	Up to 100ml
DS4	100mg	10ml	4ml	Up to 100ml
DS5	100mg	10ml	5ml	Up to 100ml
DS6	100mg	10ml	6ml	Up to 100ml
DS7	100mg	10ml	7ml	Up to 100ml
DS8	100mg	10ml	8ml	Up to 100ml
DS9	100mg	10ml	9ml	Up to 100ml
DS10	100mg	10ml	10ml	Up to 100ml

EVALUATION STUDIES OF DOMPERIDONE SUSPENSIONS (British Pharmacopoeia, 2002. Vol. I and II)

All the prepared flocculated and deflocculated suspension formulations were subjected to evaluation studies.

Determination of sedimentation volume: Suspensions were shaken well and poured into 100ml graduated cylinders, stoppered securely and kept undisturbed in the shelf. The sedimentation volume and nature of the separated phase were noted as various time intervals.

Redispersibility: suspension containing bottles were held upright between the fingers and rotated clock wise upside down through 180º in a semi circle path and back in the anticlock direction. This process was repeated continuously until the sediment was completely redispersed. Number of such cycles for complete redispersibility was noted.

Conductivity: The conductivity of the all suspensions was measured on **systronix conductivity meter 302.** To record the effect of increasing concentrations of electrolytes on the suspension formulations.

pH: The pH of the all the prepared formulations was determined to check the acceptability of the formulation with regard to pH and to check the closeness to the marketed suspension. The pH of all the prepared formulations was measured directly on Digital pH Meter.

Particle size measurements: Slides were prepared carefully by mounting the samples on clear non greasy glass slides. A few drops of distilled water were added, dispersed the drug particle uniformly with a needle and dirt free cover slips were laid without entrapping air bubbles. Excess of water was removed with a tissue paper and the slides were observed under microscope, with proper light focusing.

Preparation of standard graph of domperidone: Accurately weighed amount of 100mg of drug, domperidone was taken in a 100ml volumetric flask. The volume was made up to 100ml with methanolic 0.1n HCL, which constitutes the stock solution of 1mg/1ml. by further diluting the stock solution suitably with methanolic HCL, solutions of 1,2,3,4,5,6,7,8,9 ug/ml concentrations were prepared. These solutions were checked for their absorbance using UV- VIS spectrophotometer at 286nm; against methanolic 0.1N HCL as blank and standard graph was plotted.

Assay of Domperidone suspension

From each suspension samples, 1ml of suspension was taken and added to 100ml volumetric flask, to this 0.1 N HCL was added and the volume was made up to 100ml. This was sonicated for 10 mins and necessary dilutions were made and the absorbance was read against the blank at 286 nm. The amount of Domperidone present was calculated from the standard graph equation.

Dissolution studies

The in-vitro dissolution study was conducted for formulations using paddle apparatus (USP-II) Dissolution tester model DR-6, TAB MACHINES.

The conditions were as follows:

Dissolution medium	-	900ml of 0.1N HCL
Type	-	USP-II paddle type
RPM	-	50
Temperature	-	37º C ± 0.5º C
Time intervals	-	5, 10, 15 min.

Accurately measured 1ml of suspension was placed in dissolution vessel. At predetermined time points, 1ml of sample was taken and replenished with fresh buffer. The analysis of samples was carried out by U.V Visible spectroscopy at 286nm.

Ageing studies: Stability studies were conducted on selected domperidone suspension formulations kept at room temperature, incubator at 40ºc and in refrigerator at 6ºc±0.5ºC and also seen the effect of ageing on physico chemical properties of suspensions and on dissolution rate.

Assay of Domperidone suspensions

The assay of domperidone suspensions was carried out and the values were presented. All the formulations have the drug content within the range and FDN8 &FDS10 formulations had high drug content. In deflocculated systems, DDH formulation had high drug content than DDM formulation.

STANDARD GRAPH OF DOMPERIDONE

The standard graph of domperidone was plotted from the absorbance data of series of concentrations ranging from 1-10µg/ml at 286nm (λmax). The values are given in **table 12.** A linear relation was seen between the concentration and the absorbance of domperidone. R^2 value of 0.9947 indicates the linearity.

RESULTS AND DISCUSSIONS

The results of sedimentation volume for the flocculated domperidone suspension with different volumes of flocculants CaCl2 & AlCl3 are shown in the sedimentation volumes vs. amount of flocculent curves were shown in **fig 1&2.**, it can be seen that increasing the flocculent volume, sediment volume also increased up to optimal flocculation i.e., up to DN8 & DS10 ml. Further increase in volume of flocculent resulted in a decrease in sedimentation volume indicating that optimal flocculation zone has been crossed.

The results of conductivity for all the flocculated domperidone suspension with different volumes of flocculants CaCl2 & AlCl3, the conductivity vs. amount of flocculent curves were shown in **fig 3&4**. In both systems, there was an inflection point in conductivity corresponding to the optimal flocculation. The conductivity changes sharply up to the optimal flocculation zone. This may be due to an interaction of the flocculent with the adsorbed polymer or surfactant ions on the domperidone particles. After the optimal flocculation, the increase in conductivity was due to the addition of flocculent only. Where as in deflocculated system, the conductivity was observed that zero or no conductivity. This might be due to absence of electrolytes in that formulation particle size and characteristics were represented in **table 2**.

The pH of all the prepared suspension formulations their pHs vs. amount of flocculent curves were shown in **fig 5&6**. Domperidone suspension should have pH between 4-5. From the fig 5&6, it can be seen that increasing the amounts of flocculent had brought about a decrease in pH of domperidone suspensions. In all the suspensions prepared by different flocculating agents with varying amounts of flocculants, the pH was in the narrow range of 4.3-5. The marketed suspension DOMSTAL (Torrento) exhibited a pH of 4.6.

Dissolution studies: (Gohel *et al*., 2007). were conducted on the selected formulations DN6, DN7 & DN8 and were compared with the marketed suspension. From the **fig 7,** it was seen that, DN8 showed high dissolution rate than other two formulations DN6 and DN7. Within 15 minutes, DN8 formulation released more than 96% of the drug and it released the drug similar to the marketed formulation.

Stability studies: (Allen, 2002 and Barnes, 2007).) were conducted on the selected formulation of domperidone suspension (DN8). The formulation was kept at 3 different storage conditions, at room temperature, in incubator (40ºc) and in refrigerator (8ºc). From the **figs 8, 9, 10**, it can be seen that the DN8 formulation at different storage conditions shows that, freshly prepared suspension exhibit a very rapid dissolution and within 15 minutes, entire drug dissolved. Just after ageing for 1 month, significant retardation of dissolution rate resulted. Later with ageing a slow rate of dissolution was observed.

The results of redispersibility for all the flocculated domperidone suspension with different volumes of flocculants CaCl2 & AlCl3 are From the **tables 1**, all the formulations exhibit good redispersion on mild shaking (Gennero *et al.*, 2000).

Dissolution studies were conducted on the selected formulations DS6, DS8 & DS10 and were compared with the marketed suspension. From the fig, (**fig 11, Table 3**) it was seen that, DS10 showed high dissolution rate than other two formulations DS6 and DS8. Within 15 minutes, DS10 formulation released more than 99% of the drug and it released the drug similar to the marketed formulation.

Optimally flocculated suspensions prepared by surfactants and electrolytes (DS10) exhibited better dissolution, compared to polymer-electrolyte (DN8). The reason may be that the particle size of SLS was smaller than the particle size of Na.CMC. The smaller particle have

greater active surface area available for dissolution, hence the dissolution rate may be increased in case of surfactant-electrolyte formulation, (DS10).

Stability studies were conducted on the selected formulation of domperidone suspension (DS10). The formulation was kept at 3 different storage conditions, at room temperature, in incubator (40ºc) and in refrigerator (8ºc). From the **fig 12, 13, 14**, it can be seen that the DS10 formulation at different storage conditions shows that, freshly prepared suspension exhibit a very rapid dissolution and within 15 minutes, entire drug dissolved. Just after ageing for 1 month, significant retardation of dissolution rate resulted. Later with ageing a slow rate of dissolution was observed.

The dissolution studies were conducted on control, flocculated and deflocculated formulations. The dissolution data was shown in **fig** 15. From the figure, it can be seen that control and deflocculated suspension (0.5%HPMC) formulation released more drug than flocculated formulation. The retarded dissolution of domperidone from flocculated suspensions, compared to control and deflocculated suspensions may be due to the decreased surface area because the small particles are now entrapped in floccules network and not readily available for dissolution. The floccules settle rapidly, preventing the dispersion of particles in the medium.

In a deflocculated system, the particles were dispersed and discrete. In such systems, the dissolution must be high, as these systems expose the maximum active surface area for dissolution to occur. Deflocculated system containing 0.5% HPMC exhibit better dissolution rate than the formulation containing 2%MC. The retarded dissolution rate of 2% MC may not be due increase in bulk viscosity, may be due to surface adsorption and formation of surface barriers around MC particles.

The dissolution studies were performed on structured vehicle formulations and the dissolution data was shown in **fig**. 16. In structured vehicle formulations, the dissolution rate was decreased, because by entering the structured vehicle it imparts viscosity to that formulation. This increased viscosity retards dissolution. The reduced dissolution rate was attributed to both viscosity and polymer agglomeration. SDH and SDM shows good dissolution rate compared to SFN and SFS.

In the present study, ageing of domperidone suspension containing different suspending agents brought about changes in sedimentation volume, redispersibility, conductivity and pH. These changes in turn have affected dissolution of the test suspensions.

Effect of ageing on sedimentation volume shows that the sedimentation volume was decreased with ageing. This might be due to rapid decline in viscosity during storage shown in **table** 4.

The suspension of domperidone with 1%Na.CMC and 10%SLS exhibit the best redispersion on ageing up to 6 months, as uniform dispersion was achieved on mild to moderate agitation throughout the storage period.

Slight increase in conductivity was seen up to 6 months of ageing in all domperidone formulations shown in **table** 5. This might be due to formation of collisions during storage, and due to an interaction of the flocculating agent with the adsorbed polymer or surfactant ions on the domperidone particles.

No significant change in pH was seen up to 6 months of ageing in all domperidone suspensions shown in **table** 6. However considering the period of ageing, it may not be of much significance. The changes in apparent viscosity of polymers accompanied by formation of small amounts of ionic products during storage. Perhaps the reduced pH on ageing for long periods in suspensions could be due to the ionic products (Carter, 2005).

Table1. Redispersibility

FORMULATION CODE	REDISPERSIBILITY	FORMULATION CODE	REDISPERSIBILITY
DN2	Once	DS2	Once
DN4	Once	DS4	Once
DN6	Once	DS6	Once
DN7	Twice	DS8	Once
DN8	Once	DS10	Once
DN10	Thrice	DS12	Twice

Table 2: Particle size & Characteristics

S.No	Formulation code	Drug content
DN6	18	Needles
DN7	18	Needles
DN8	15	Needles
DN10	23	Lumps
DS6	10	Needles
DS8	15	Needles
DS110	10	Needles
DS12	18	RodS

Table 3: Dissolution profile of different formulations and Marketed Domperidone

S.No	Formulation code	Drug content
1	FDN6	95.06%
2	FDN7	97.42%
3	FDN8	98.87%
4	FDS6	96.45%
5	FDS8	98.34%
6	FDS10	99.04%
7	DDH	99.89%
8	DDM	98.25%
9	Marketed	99.71%

FDN = Flocculated domperidone suspension with Na.CMC; FDS = Flocculated domperidone suspension with SLS; DDH = Deflocculated domperidone suspension with HPMC K4M; DDM = = Deflocculated domperidone suspension with MC.

Table 4: Effect of ageing and freezing on sedimentation volume of Domperidone suspension

Systems	ageing in days/ months(M)							Freezing effect in days/months(M)						
	1day	1M	2M	3M	4M	5M	6M	1day	1M	2M	3M	4M	5M	6M
DN6	32	30	29.5	28	27	26.5	25	32	30	29	28	27	26.5	25
DN7	28	27	25.5	24	23.5	22	21	28	27.5	26	24	23	22	21
DN8	36	34	33	32.5	32	31	29	36	34	33.5	32	32	31	30
DS6	18	17	16	14	13	12	10	18	16	16	14	13	12	10
DS8	20	19	18	17	16	14	12	20	18	18	17	16	15	14
DS10	24	22	21	20	19	18	16	24	23	22	21	21	20	18

Table 5: Effect of ageing and freezing on conductiity of Domperidone suspension

Systems	ageing in days/ months(M)							Freezing effect in days/months(M)						
	1day	1M	2M	3M	4M	5M	6M	1day	1M	2M	3M	4M	5M	6M
DN6	10.2	10.8	11.2	12.4	12.7	13.1	13.8	10.2	10.6	11.1	11.9	12	12.9	13.2
DN7	12.5	13.1	13.4	13.6	14.6	14.9	15.7	12.5	12.7	13.2	13.6	14	14.7	14.9
DN8	13.8	14.3	14.8	15.2	15.8	16.2	16.9	13.8	14.1	14.5	14.8	15	15.4	15.9
DS6	8.1	8.9	9.1	9.3	10.4	10.9	11.3	8.1	8.7	8.9	9.3	9.7	9.9	11.2
DS8	10.1	11	11.4	11.7	12.3	12.8	13.7	10.1	10.4	10.9	11.3	12	11.9	12.5
DS10	11.3	11.9	12.1	12.7	13.5	14.2	14.9	11.3	11.4	11.6	11.9	12	12.9	13.6

Table 6: Effect of ageing and freezing on pH of Domperidone suspension

Systems	ageing in days/ months(M)							Freezing effect in days/months(M)						
	1day	1M	2M	3M	4M	5M	6M	1day	1M	2M	3M	4M	5M	6M
DN6	4.74	4.78	4.75	4.75	4.73	4.75	4.62	4.74	4.78	4.75	4.75	4.7	4.75	4.62
DN7	4.36	4.4	4.35	4.42	4.51	4.56	4.29	4.36	4.4	4.35	4.42	4.5	4.56	4.29
DN8	4.32	4.35	4.38	4.42	4.49	4.52	4.27	4.32	4.35	4.38	4.42	4.5	4.52	4.27
DS6	4.62	4.64	4.65	4.6	4.59	4.6	4.47	4.62	4.64	4.65	4.6	4.6	4.6	4.47
DS8	4.54	4.58	4.6	4.55	4.62	4.65	4.45	4.54	4.58	4.6	4.55	4.6	4.65	4.45
DS10	4.52	4.55	4.57	4.57	4.61	4.64	4.41	4.52	4.55	4.57	4.57	4.6	4.64	4.41

Sedimentation volume of suspension

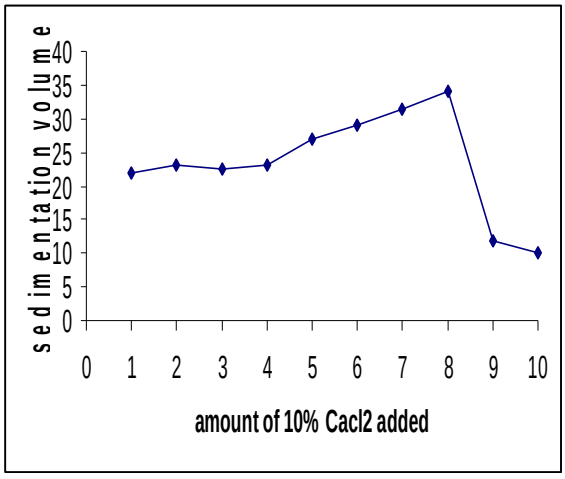


Fig 1

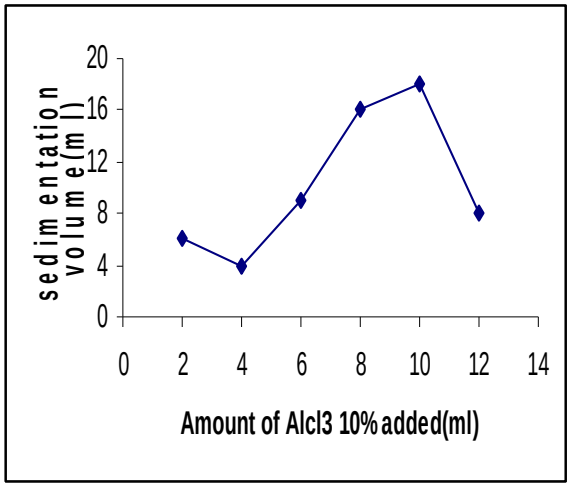
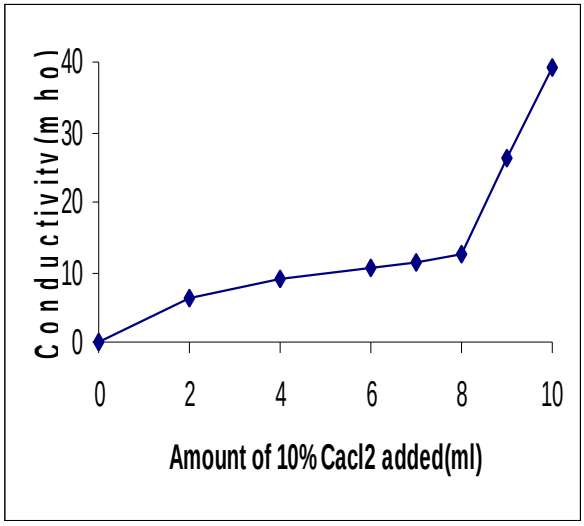


Fig 2

Fig 1: Effect of added 10% Cacl2 on sedimentation volume of Domperidone suspensions (Sod. CMC), Fig 2: Effect of added 10% Alcl3 on sedimentation volume of Domperidone suspensions (SLS)

CONDUCTIVITY



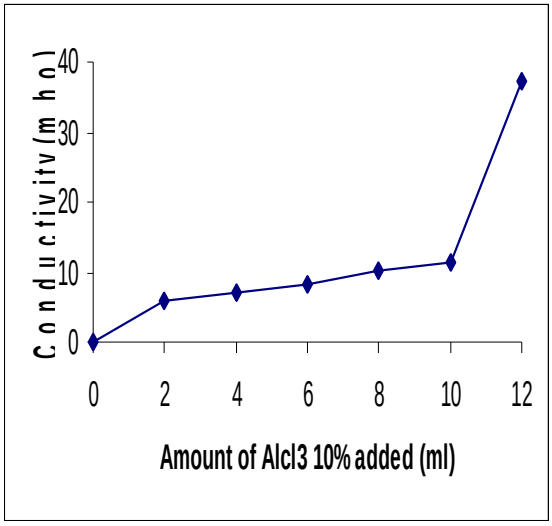
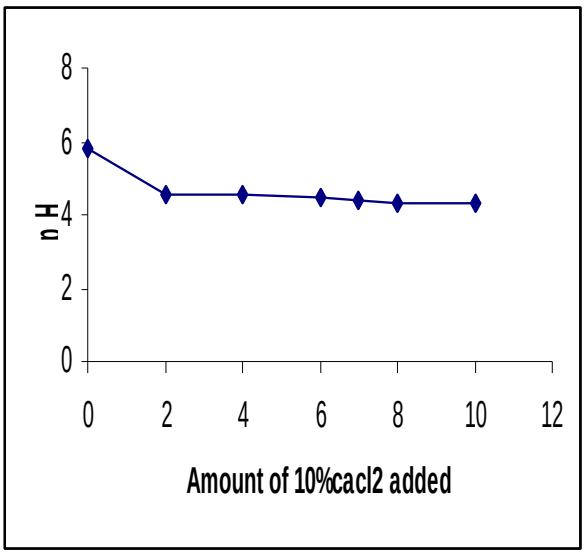


Fig 3 **Fig 4**

Fig 3: Effect of added 10% Cacl2 on conductivity of Domperidone suspensions (Sod. CMC)

Fig 4: Effect of added 10% Alcl3 on conductivity of Domperidone suspensions (SLS)

pH



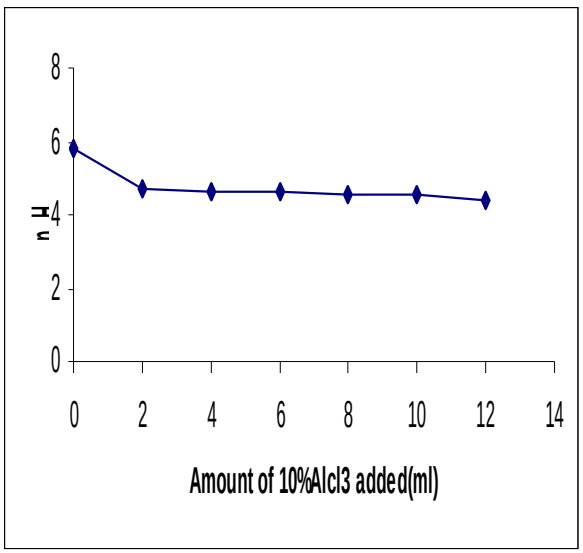
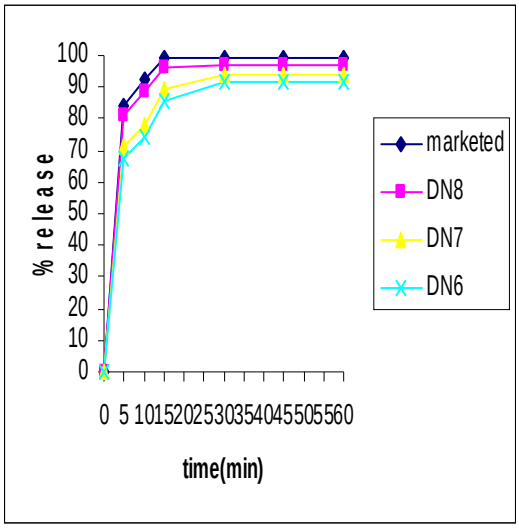


Fig5 **Fig6**

Fig5: Effect of added 10% Cacl2 on pH of Domperidone suspensions(Sod. CMC)

Fig6: Effect of added 10% Alcl3 on pH of Domperidone suspensions (SLS)



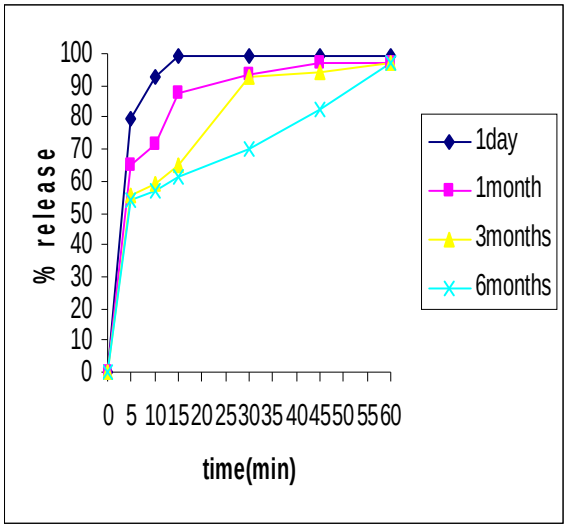
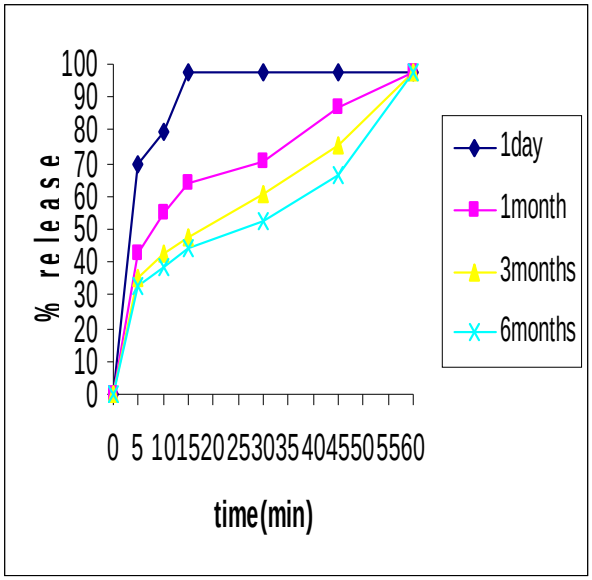


Fig 7 **Fig 8**

Fig7: Comparison of dissolution profiles of Domperidone suspension containing Na. CMC and $CaCl_2$ with marketed product

Fig8: Effect of Natural ageing on dissolution profiles of Domperidone suspension (Sod.CMC)



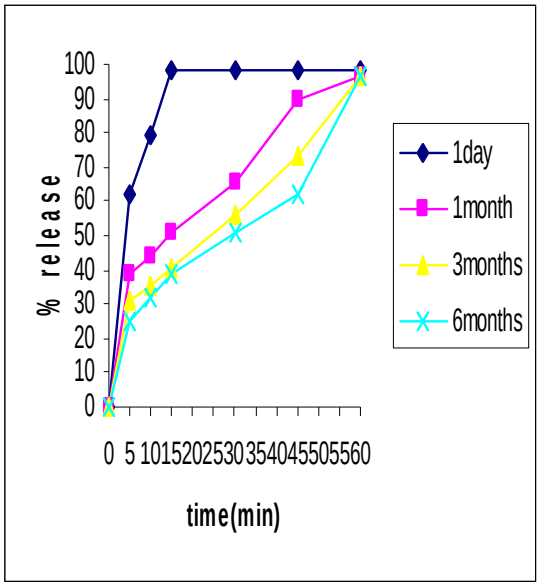


Fig 9 **Fig 10**

Fig 9: Effect of Artificial ageing on dissolution profiles of Domperidone suspension (Sod.CMC)

Fig 10: Effect of freeze thaw cycle on dissolution profiles of Domperidone suspension (Sod.CMC)

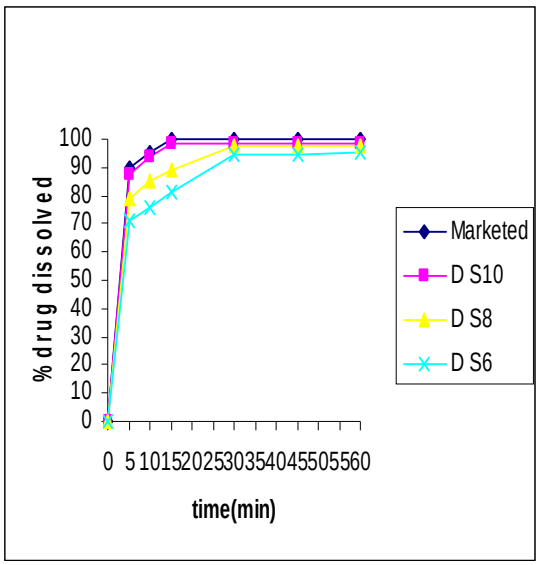


Fig 11

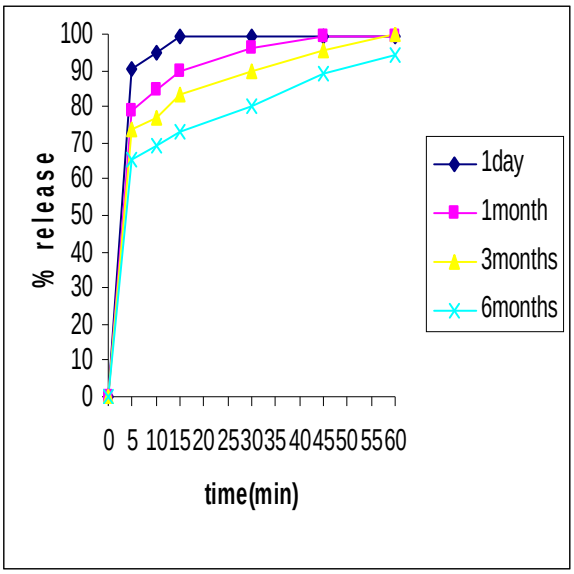


Fig 12

Fig 11: Comparison of dissolution profiles of Domperidone suspension containing SLS and $AlCl_3$ with marketed product

Fig 12: Effect of natural ageing on dissolution profiles of Domperidone suspension (with SLS)

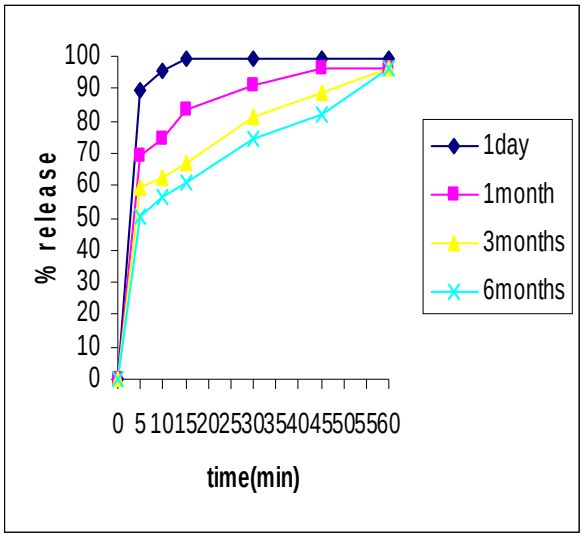


Fig 13

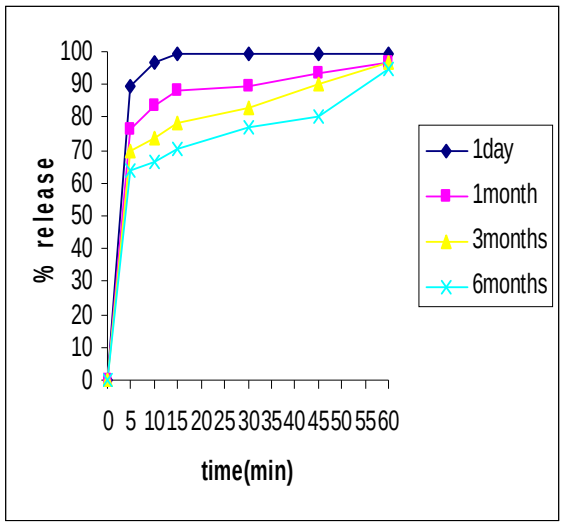
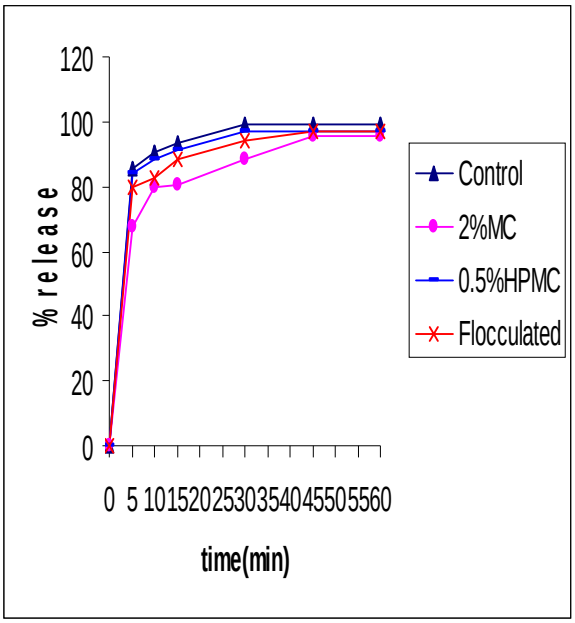


Fig 14

Fig 13: Effect of artificial ageing on dissolution profiles of Domperidone suspension (with SLS)

Fig 14: Effect of freeze thaw cycle on dissolution profiles of Domperidone suspension (with SLS)



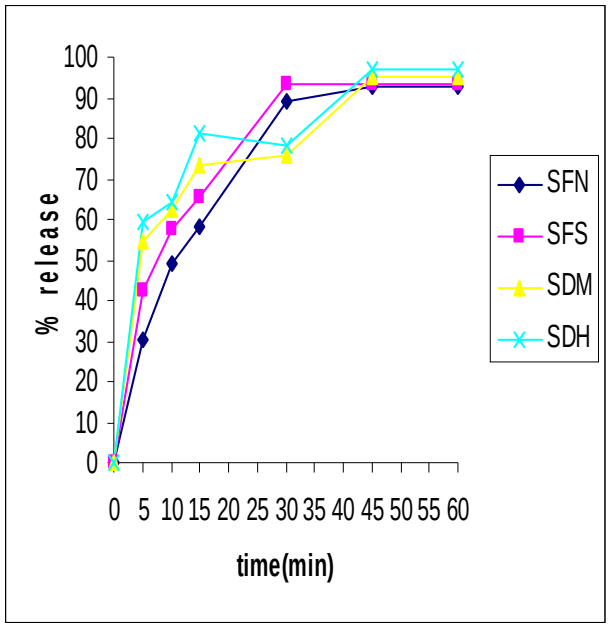


Fig 15 **Fig16**

Fig 15: Comparison of dissolution profiles of flocculated and deflocculated suspensions

Fig 16: Drug dissolution profiles of structured vehicle formulations

CONCLUSIONS

The following conclusions drawn from the studies.

- Domperidone suspensions were prepared using different polymers as suspending agents.
- Based on the sedimentation volume, rate of settling, ease of redispersibility and optimum release, DN8 & DS10 formulations were selected as best formulations.
- A good correlation between the extent of flocculation and sedimentation volume, conductivity could be seen in all the flocculated systems of domperidone.
- Optimally flocculated suspensions of domperidone prepared by surfactant and electrolyte (DS10) exhibited better dissolution compared to polymer-electrolyte formulation (DN8).
- All the formulated suspensions were stable, as the sedimentation volumes, pH, and conductivity, changed to a little extent with ageing. Considering the period of ageing, it may not be of much significance.

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