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Comparative study for cumulative drug release of unani emulgel dosage form with *Raughan*: A novel approach

Shamim and Mohammad Idris

Abstract
Topical drug administration is a localized drug delivery system anywhere in the body mainly through skin, partly from ophthalmic, rectal, and vaginal as topical routes. The dosage forms used topically range in physicochemical nature from solid through semisolid to liquid form. It is interesting to note that in spite of the popular Unani drug dosage forms (UDDFs), namely *safoof* (powder), *hub* (pill) *qurs* (tablet), *majoon* (electuary) etc. devised and developed exclusively for the oral route. A separate class of UDDFs had also been designed and developed for joint disorders/diseases, such as *marham* (ointment), *Raughan* (medicated oil), *tila* (liniment) etc. administered topically. These UDDFs have been more effective and safe in clinical practice since centuries. However, there is no denying the fact that these dosage forms have some disadvantages in terms of delayed onset of action and cumbersome to use. Thus, it needs to be understood in the present perspective. The need of the hour is to revisit the Unani dosage forms in terms of prevailing situation, i.e., need of fast relief and user-friendly approach. It necessitates meeting the challenge by developing Unani fast reliving drug delivery system (UFRDDS), especially employed as analgesic and anti-inflammatory medicament. The joint disorder/disease, muscular inflammatory conditions are the most suitable case for UFRDDS. The study resulted that there was a vast difference shown in CDR of both versions, i.e., classical prepared *Raughan* as per Unani pharmacopoeial method and prepared in the form of emulgel according to conventional pharmaceutics. In the former the CDR was 58.46%, i.e., half amount of drugs released whereas it was more than two third, i.e., 78.82% in case of latter. The pattern of drug release in both versions was also significant in terms of drug release time after 3,15,30,45 and 60 minutes. The difference of CDR was found about 20 percentages between both versions. It showed a fare amount of drugs released in the body. In this paper, an effort has been made to compare the Cumulative Drug Release (CDR) of prepared Unani emulgel dosage form with *Raughan* (oil) prepared by Unani classical method.

Keywords: Unani dosage form, unani emulgel, unani pharmaceutics, cumulative drug release, *raughan*, emulgel

Introduction
The renewed interest has been showing in the world for use of medicinal plants as herbal drugs which have been in practice for the prehistoric times. Unani *tib*, as its name suggests, belongs to Greek, thus retains its place of origin. It was reshaped and redeveloped by the Arab philosophers and physicians. *Ilm-us-Saidla*, a multifaceted branch of Unani *tib*, represents different aspects of Unani drug making, i.e. *dawasazi/saidla* and formulation designing, new and/or novel drug delivery system, research and development (R&D) in pharmaceutics. It also deals with nutraceuticals (*ghiza-e-dawaee*), and cosmetics and perfumery (*ashia-e-muzzaina wa mua'tra*). As a matter of historical fact, the vast diversity of Unani drug dosage forms (UDDFs) has no parallel in any stream of medicine even in the conventional medicine of today. These drug dosage forms were devised and developed by the ancient Unani philosophers, such as Pythagoras, Erasistratus etc.; physicians namely Hippocrates, Galen, and the medieval Arab Physician-Alchemists by the name of Abu Bakr Mohammad bin Zakariya al-Razi, Jabir bin Hayyan al-Azdi, Abu Yusuf al-Kindi, Ibn Sina, Abdul Latif al-Baghdadi-, and Indian physicians, such as- Mohammad Sharif Khan, Alvi Khan, Mohammad Azam Khan, Mohammad Ajmal Khan- to name a famous ones whose vision and contributions broaden the domain of *Ilm-us-Saidla.*

In Unani system of medicine, analgesic and anti inflammatory drugs are used in the form of single (*mufrad*) drugs and compound (*murakkab*) dosage forms. There are various topical drugs available for the effective and safe management and treatment of inflammatory indications.

The topically used Unani dosage forms are mainly based on *Raughan* (medicated oil). *Raughan* is a medium which is used in different forms.

It is used for making the medicine, as medicine itself, as one of the ingredients in a particular formula or as medicated oil by mixing with other drugs of plant, animal or mineral origin. It is mostly used as a base (as in the case of ointment) and is generally obtained from plant sources. Oil can be extracted on different parts of the plant, *viz*. *Maghziyat* (Kernels of the fruits), Roots, Leaves, Flowers, Seeds and so on.

The combined dosage form of gel and emulsion are referred as emulgel. Both oil-in-water and water-in-oil emulsions are extensively used as vehicles to deliver various hydrophilic as well as hydrophobic drugs to the skin in emulgel formulation The emulgel has more advantages, such as more absorption, better skin penetration, greaseless, thixotropic, easily spreadable, easily removable, emollient, non-staining, water-soluble, longer shelf life, bio-friendly, better stability, high loading efficiency, more economic with low-cost production.

Raughan are poorly absorbed and delayed in action. In a field / observational study, it was observed that the Unani dosage forms, especially employed topically are desired to be modified in terms of efficacy, application, safety and packaging. The major problem of these dosage forms confronts with their slow duration of action and not user-friendly approach. After a thorough survey of Unani classical literature, it was decided to envisage a study based on designing and development of a new pharmaceutical dosage form as emulgel and to compare the Cumulative Drug Release (CDR) with *Raughan*.

Material and Methods

The present study is based on the pharmaceutical design and development of a Unani emulgel and *Raughan* dosage form along with its standard operating procedure (SOP) and comparative study for cumulative drug release of Unani emulgel dosage form with *Raughan*.

Materials

Table 1: List of ingredients included in the test formulation

S. No.	Name	Botanical name	Part used
1.	Aak	*Calotropis procera*	Barg
2.	Bakayan	*Melia azedarach*	Barg
3.	Bed Anjeer	*Ricinus communis*	Barg
4.	Dhatura	*Datura stramonium*	Barg
5.	Sanbhaloo	*Vitex negundo*	Barg
6.	Sahajna	*Moringa oleifera*	Barg
7.	Thuhar	*Euphorbia neriifolia*	Barg
8.	Babuna	*Matricaria chamomilla*	Flower
9.	Kunjad	*Sesamum indicum*	Seeds'oil

Table 2: List of chemicals used in the test formulation

S. No.	Material	Grade	Manufacturer
1.	Tween 20	Pharma grade	Pioneer in –Organics, Delhi
2.	Tween 80	Pharma grade	Pioneer in –Organics, Delhi
3.	Gum acacia	Pharma grade	Pioneer in –Organics, Delhi
4.	Carbopol 940	Pharma grade	Pioneer in –Organics, Delhi
5.	Hpmc	Pharma grade	Pioneer in –Organics, Delhi
6.	Oleic acid	Pharma grade	Pioneer in –Organics, Delhi
7.	Propyl paraben sodium	Pharma grade	Pioneer in –Organics, Delhi
8.	Methyl paraben sodium	Pharma grade	Standard chemicals, New Delhi
9.	Liquid paraffin	Pharma grade	Sisla laboratories, New Delhi
10.	Buffer solution	Pharma grade	General drug house, New Delhi

Table 3: List of instruments/equipments

S. No.	Instrument	Manufacturer
1.	Artificial membrane	Sigma Aldrich chemicals Pvt. Ltd. Missouri, USA
2.	Electronic balance	Citizen India
3.	Franz diffusion cell	Alpha Scientific Equipments, Delhi
4.	Hot air oven	Uts Pvt. Ltd. India
5.	Hot plate with Magnetic stirrer	Altis Instruments, India
6.	Mixer and Grinder	Lords Gold, India
7.	Ph meter	Decibel Instruments, India
8.	Pharmaceutical sieves	Parasava Natha Wire Netting Store, Delhi
9.	Soxhlet apparatus	Alpha Scientific Equipments, Delhi
10.	UV Spectrometer	Shimadzu –UV-1601, Kyoto, Japan
11.	Water Bath	Altis Instruments, India
12.	Electrical Microscope	Magnus, India

Preparation of Emulgel

(a) Preparation of aqueous extract

Leaves of *Aak*, *Bakayan*, *Bed anjeer*, *Dhatura*, *Sanbhalu*, *Sahajna*, *Thuhar* and flowers of *Babuna* were taken in equal quantity, i.e., 10 grams each, and crushed by using iron mortar and pestle. 800 ml distilled water was added in crushed ingredients, and run over 6 hours at 70^0c by soxhlet apparatus. The quantity of obtained extract was 550 ml.

(b) Preparation of emulsion

In this study, 50 ml prepared aqueous extract was taken in a beaker and placed on magnetic stirrer, 35 ml *Raughan -e-Kunjad* was taken in another beaker, in this beaker 15 grams gum acacia was added and mixed well. Then the beaker containing medicinal extract was placed on magnetic stirrer at the room temperature and *Raughan -e-Kunjad* was added along with surfactant and mixed for 6 hours.

(c)Preparation of 2.5% gel

2.5 grams Carbopol-940 was dispersed in 100 ml of distilled water for 24 hours for hydration, then it was stirred thoroughly using magnetic stirrer and consistency was checked.

(d) Preparation of emulgel using Carbopol 940 as a gelling agent in 2.5%: Emulsion was prepared and gel in 2.5% Carbopol 940 was added. It was mixed, stirred thoroughly by using magnetic stirrer, and checked its consistency. In the final version of emulgel, methyl paraben 0.1% was added and placed at room temperature. Its stability was checked for a period of 6 months.

Table 4: The composition of Unani Emulgel

S. No.	Composition	Quantity
1.	Medicinal extract	50 ml
2.	*Raughan -e-Kunjad*	35 ml
3.	Gum acacia	15 grams
4.	Carbopol 940	2.5grams
5.	Oleic acid	5.0 ml
6.	Menthol oil	2.5 ml
7.	Methyl paraben	0.1 gram

Preparation of *Raughan* by conventional *Unani* method
Fresh leaves of *Aak*, *Bakayan*, *Bed Anjeer*, *Dhatura*, *Sanbhaloo*, *Sahajna*, *Thuhar* and flowers of *Babuna* were collected from the herbal garden at A & U Tibbia College & Hospital, New Delhi, properly cleaned and taken in equal quantity, i.e., 150 grams each. All ingredients were crushed by using iron mortar and pestle then placed in mixer for obtaining fresh juice. The juice was filtered properly by using cotton muslin cloth, and finally filtered through whatman filter paper no.1. 1300 ml green colored fresh juice was obtained. It was mixed with 450 ml of *Raughan -e-Kunjad*, and boiled for 3 hours. Finally, 400 ml *Raughan* was obtained, and preserved in a glass bottle for further study.

***In vitro* Release / Permeation Study of Emulgel**
In vitro release study was carried out by using Franz diffusion cell method. Franz diffusion cell was used for the drug release study. The gelified emulsion was applied onto the surface of artificial membrane. The membrane was clamped between the donor and the receptor chamber of diffusion cell. The receptor chamber was filled with freshly prepared phosphate buffer solution (PBS) (pH 7.4) solution to solubilise the drug. The receptor chamber was stirred by magnetic stirrer. The samples (3.0 ml) were collected at time interval of 5 minutes for first 30 minutes, for next 90 minutes at interval of 15 minutes, further next two hours at interval of 30 minutes, next two hours at interval of 60 minutes, next at interval of 6 hours, and finally after 24 hours They were filtered for analysis and replaced with an equal volume of the buffer solution to maintain a constant volume. The absorbance of the collected samples was measured by the UV spectrophotometer at λ max of 635 nm, using the same buffer solution as a control medium. The *in vitro* skin permeation study was carried out in triplicate for each formulation. Thereafter, the mean values and standard deviations for the amount of drug permeated were calculated and used for further calculations, and also these samples were analyzed for qualitative test (Haneefa, 2013, Masmoudier al, 2006) [26, 46].

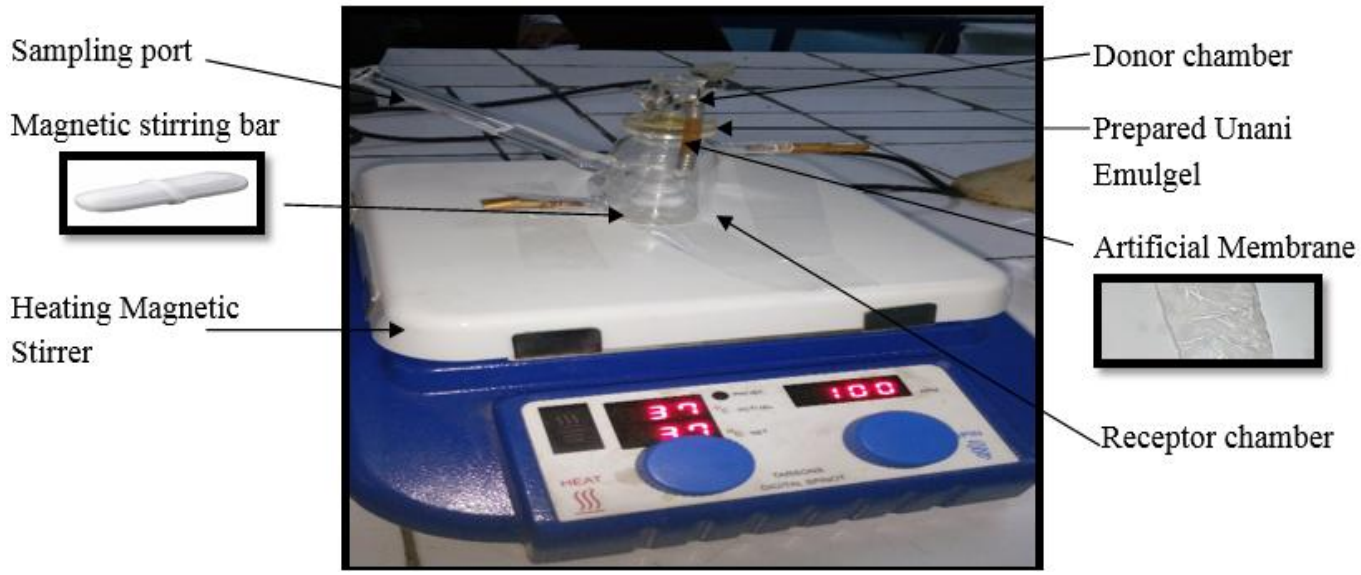

Fig 1: *In vitro* Release /Permeation Study of Emulgel by Franz Diffusion Cell Apparatus

In vitro* Release / Permeation study of *Raughan
In vitro release study was carried out by using Franz diffusion cell method. Franz diffusion cell was used for the drug release study. The oil was applied onto the surface of artificial membrane. The membrane was clamped between the donor and the receptor chamber of diffusion cell. The receptor chamber was filled with freshly prepared PBS (pH 7.4) solution to solubilise the drug. The receptor chamber was stirred by magnetic stirrer. The samples (3.0 ml) were collected at time interval of 5 minutes for first 30 minutes, for next 90 minutes at interval of 15 minutes, further next two hours at interval of 30 minutes, next two hours at interval of 60 minutes, next at interval of 6 hours, and finally after 24 hours They were filtered for analysis and replaced with an equal volume of the buffer solution to maintain a constant volume. The absorbance of the collected samples was measured by the UV spectrophotometer at λ max of 635 nm, using the same buffer solution as a control medium. The *in vitro* skin permeation study was carried out in triplicate for each formulation. Thereafter, the mean values and standard deviations for the amount of drug permeated were calculated and used for further calculations, and also these samples were analyzed for qualitative test (Haneefa, 2013, Masmoudi *et al*, 2006) [26, 46].

Fig 2: *In vitro* Release/Permeation Study of Raughan by Franz Diffusion Cell Apparatus

Qualitative analysis of aqueous extract of formulation
The qualitative analysis of the different samples of aqueous extract of formulation was done by using various chemical tests.

(a) Tests for Alkaloids
Dragendorff's Test: 1.0 ml of the extract was taken in a test tube, added 1 ml Dragendorff's reagent were added and observed the change (s).

(b) Tests for Carbohydrates
Benedict's test: 1.0 ml of extract was taken in a test tube and 5 ml of Benedict's reagent was added, boiled for 2 minutes, cooled, and observed the change (s).

(c) Tests for Proteins
Lead Acetate Test: 5.0 ml of extract was taken in a test tube, added 1.0 ml of lead acetate solution and observed the change (s).

Qualitative analysis of prepared Emulgel
The qualitative analysis of the different sample was done by using various chemical test.

(a) Tests for Alkaloids
Dragendorff's Test : 1 ml of the sample was taken in a test tube from the Franz diffusion cell, added 1.0 ml, Dragendorff's reagent was added and observed the change (s).

(b) Tests for Carbohydrates
Benedict's test: 1.0 ml of sample was taken in a test tube and 5.0 ml of Benedict's reagent was added, boiled for 2 minutes, cooled and observed the change (s).

(c) Tests for Proteins
Lead Acetate Test: 5.0 ml of sample was taken in a test tube, added 1.0 ml of lead acetate solution, and observed the change (s).

Qualitative analysis of prepared *Raughan*
The qualitative analysis of the different samples was done by using various chemical tests.

(a) Tests for Alkaloids
Dragendorff's Test: 1.0 ml of the sample was taken in a test tube from the Franz diffusion cell, added 1.0 ml. Dragendorff's reagent was added and observed the change.

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(c) Tests for Proteins
Lead Acetate Test: 5.0 ml of sample was taken in a test tube, added 1.0 ml of lead acetate solution and observed the change (s).

Observations & Results
Determination of λ max of extract
The peak wavelength λ max of the extract under UV spectrum was 635 in phosphate buffer at pH fixed at 7.4.

Table 5: Absorbance at 635 of extract

S. No.	Concentration (%)	Absorbance at 635
1	05	0.0319
2	10	0.0780
3	25	0.1852
4	50	0.4086
5	75	0.6032
6	100	0.8011

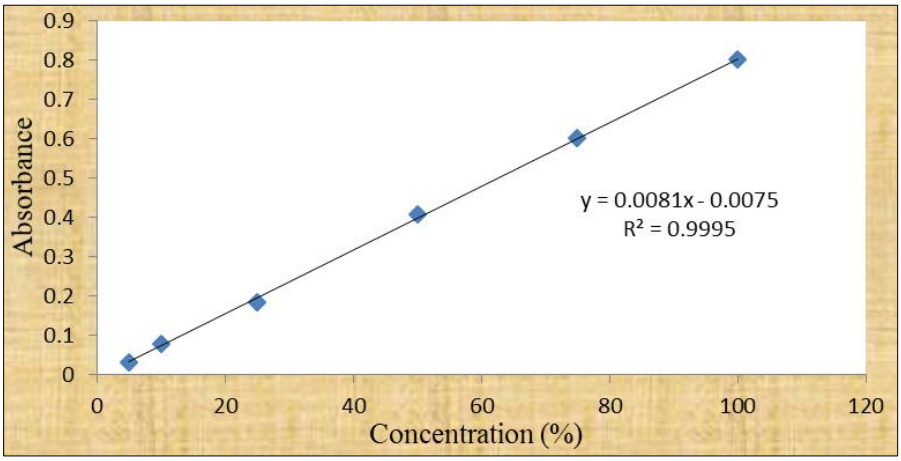


Fig 3: Absorbance of extract

Table 6: Organoleptic characteristics of emulgel

S. No.	Organoleptic Character	Observation
1.	Appearance	Liquid
2.	Color	Light brown
3.	Grittiness	No
4.	Homogeneity	Homogenous
5.	Phase separation	None
6.	Smell	Agreeable

Fig 4: Prepared Emulgel

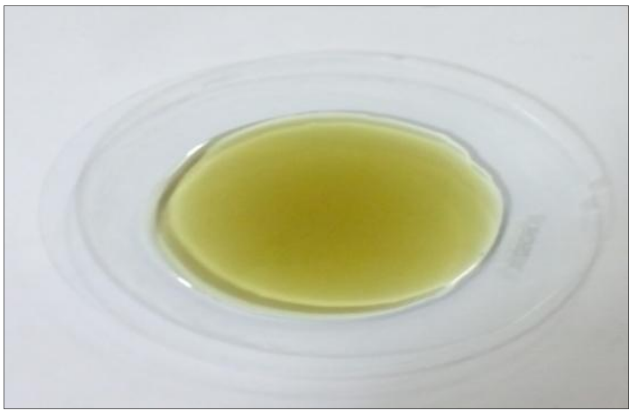


Fig 5: Prepared Raughan

In vitro permeation study

Table 7: Qualitative analysis

S. No.	Test	Extract	Emulgel	*Raughan*
1.	Alkaloids (Dragendorff's Test)	Strongly positive (orange red precipitate)	Positive (orange red precipitate)	Positive (orange red precipitate)
2.	Carbohydrates (Benedict's Test)	Strongly Positive (red precipitate)	Positive (red precipitate)	Positive (red precipitate)
3.	Proteins (Lead Acetate Test)	Strongly Positive (white precipitate)	Positive (white precipitate)	Positive (white precipitate)

Quantitative Analysis

Table 8: Quantitative analysis Emulgel

S. No.	Time (min)	Absorbance	% Drug Release	Mean % drug release ± S.D
1.	0	0.0000	0.0000	0±00
2.	3	0.0197	3.3375	3.6±0.357
3.	5	0.0300	4.625	4.61±0.425
4.	10	0.049	7.0	7.03±0.201
5.	15	0.073	10.0	10.23±0.634
6.	20	0.098	13.125	13.34±0.610
7.	25	0.126	16.625	16.77±0.916
8.	30	0.137	18	18.06±0.266
9.	35	0.146	19.125	20.33±1.051

10.	40	0.176	22.875	22.47±0.635
11.	45	0.184	23.875	23.69±0.512
12.	50	0.228	29.375	29.15±0.349
13.	55	0.236	30.375	30.76±0.353
14.	60	0.286	36.625	36.47±0.588
15.	75	0.384	48.875	49.13±0.252
16.	90	0.412	52.375	51.74±0.572
17.	105	0.426	54.125	54.44±0.510
18.	120	0.438	55.625	56.00±0.372
19.	135	0.449	57.0	57.08±0.170
20.	150	0.465	59.0	59.32±0.596
21.	165	0.474	60.125	60.62±0.460
22.	180	0.482	61.125	60.80±0.408
23.	195	0.497	63.0	62.55±0.489
24.	210	0.501	63.5	64.08±0.634
25.	225	0.52	65.875	65.95±0.184
26.	240	0.533	67.5	67.83±0.800
27.	255	0.549	69.5	68.88±0.784
28.	270	0.553	70.0	70.45±0.562
29.	300	0.563	71.25	71.67±0.546
30.	330	0.581	73.5	73.14±0.307
31.	360	0.592	74.875	75.20±0.467
32.	1440	0.628	79.375	78.82±0.557

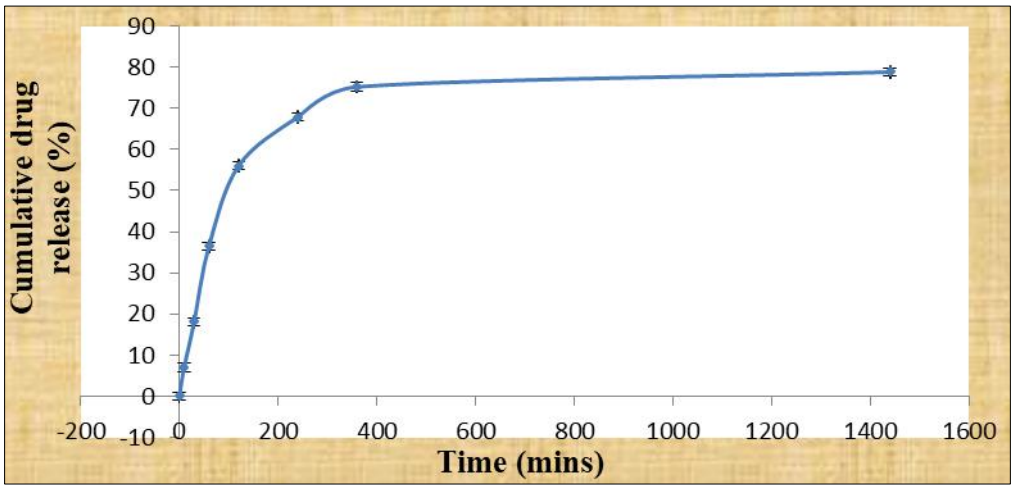


Fig 6: Cumulative Drug Release of emulgel

The mean amount of cumulative drug release (CDR) of emulgel during first 60 minutes was rapid which slowed down as the experiment proceeded. The amount of drug release was 3.6 ± 0.357 % in first 3 minutes and increased to 10.23 ± 0.634 % within 15 minutes, and reached to 18.06 ± 0.266 % in 30 minutes, reached to 36.47 ± 0.588 % in 60 minutes, the drug release at the end of 120 minutes was 56.00 ± 0.372 %, and reached to 67.83 ± 0.800 % in 240 minutes. The CDR in 360 minutes was 75.20 ± 0.467%. The mean CDR in 24 hours was 78.82 ± 0.557%.

Table 9: Quantitative analysis *Raughan*

S. No.	Time(min)	Absorbance	% Drug Release	Mean % drug release ± S.D
1.	0	0	0	0
2.	3	0.0019	1.1125	1.14±0.055
3.	5	0.0195	3.3125	3.35±0.063
4.	10	0.0253	4.0375	4.31±0.368
5.	15	0.0298	4.6	4.69±0.079
6.	20	0.0338	5.1	5.22±0.115
7.	25	0.063	8.75	8.90±0.141
8.	30	0.084	11.375	11.52±0.221
9.	35	0.096	12.875	12.69±0.295
10.	40	0.108	14.375	13.84±1.048
11.	45	0.117	15.5	15.79±0.272
12.	50	0.126	16.625	17.18±0.552
13.	55	0.149	19.5	19.93±0.430
14.	60	0.176	22.875	23.13±0.318
15.	75	0.183	23.75	23.34±0.405
16.	90	0.194	25.125	25.17±0.452

17.	105	0.219	28.25	28.19±0.244
18.	120	0.237	30.5	30.45±0.506
19.	135	0.248	31.875	32.02±0.147
20.	150	0.264	33.875	33.60±0.528
21.	165	0.279	35.75	35.24±1.0267
22.	180	0.283	36.25	36.68±0.393
23.	195	0.296	37.875	37.11±0.682
24.	210	0.305	39	38.83±0.358
25.	225	0.326	41.625	40.96±0.648
26.	240	0.352	44.875	44.91±0.560
27.	255	0.366	46.625	46.61±0.175
28.	270	0.381	48.5	48.96±0.5645
29.	300	0.407	51.75	51.39±0.808
30.	330	0.418	53.125	53.76±0.824
31.	360	0.431	54.75	54.78±0.820
32.	1440	0.451	57.25	58.46±1.055

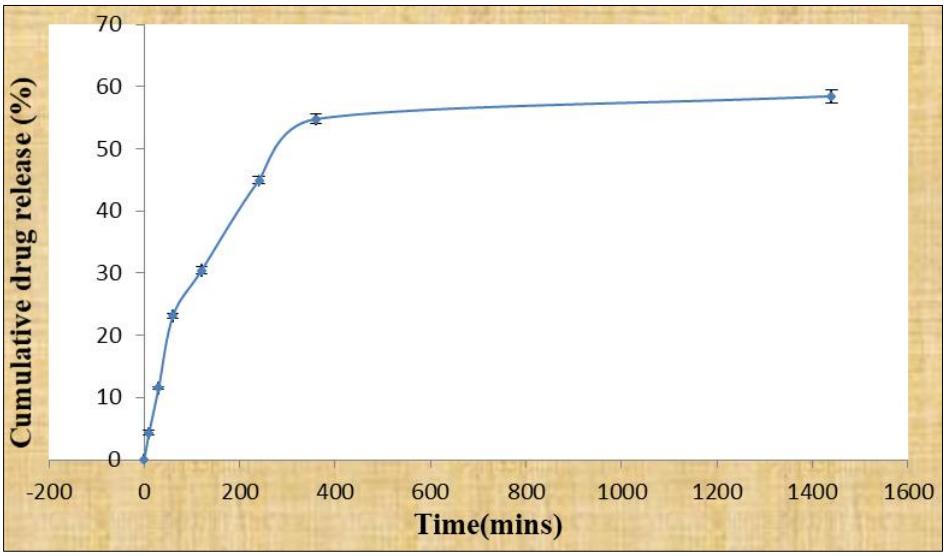
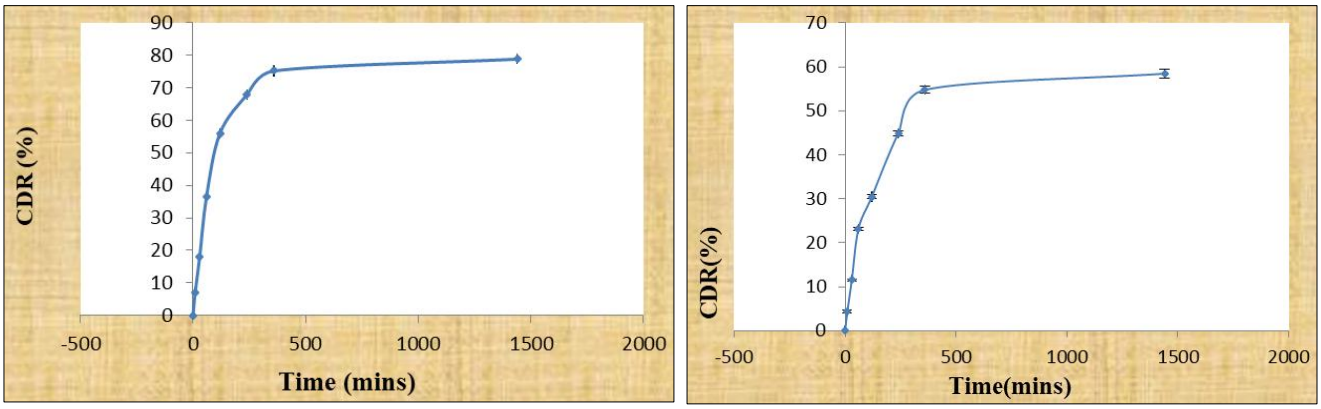


Fig 7: Cumulative Drug Release of *Raughan*

The mean amount of cumulative drug release (CDR) of *Raughan* was 1.14 ± 0.055% in first 3 minutes and increased to 4.31 ± 0.368% within 15 minutes, and reached to 11.52 ± 0.221% in 30 minutes, reached to 23.13 ± 0.318% in 60 minutes, the drug release at the end of 120 minutes was 30.45 ± 0.506%, and reached to 44.91 ± 0.560 % in 240 minutes. The CDR in 360 minutes was 54.78 ± 0.820%. The mean CDR in 24 hours was 58.46 ± 1.055%.



Emulgel *Raughan*

Fig 8: Cumulative Drug Release Comparison of Emulgel and *Raughan*

Discussion

The test formulation based on nine (9) single Unani drugs chosen has been a novel combination for anti-inflammatory and analgesic properties. It has also been mentioned that these nine (9) single Unani drugs possess potent *mohallil-e-auram* (anti-inflammatory) in almost all *qarabadeen* (pharmacopoeias). The uniqueness of this formulation lies in the fact that it is the one of the Unani classical formulations which has been used for over a long period of time.

The ingredients of test formulation were collected from the herbal garden at Ayurvedic & Unani Tibbia College & Hospital, Karol Bagh, New Delhi. *Raughan-e-Kunjad* (Sesame

oil) was procured from traditional oil expeller (*bail kolhu*) at Ballimaran in old Delhi. Samples of ingredients were separately packed, and sent for identification. The identity of all drugs was established by the experts of Raw Material Herbarium and Museum, CSIR-National Institute of Science Communication and Information Resources (NISCAIR), New Delhi.

In this study, a number of procedures and tests were employed to design and develop a Unani anti-inflammatory & analgesic emulgel and *Raughan* with standard operating procedure (SOP).As many as thirty nine (39) versions of emulsion and twelve (12) versions of emulgel were prepared. and a version of *Raughan* based on Unani classical method was prepared for the purpose of comparison of cumulative drug release between *Raughan* and emulgel. In the preparation of emulsion (oil in water), different surfactants, namely tween 20, tween 80, gum acacia were used. The aqueous extract was used as a water phase, and oil phase was made by *Raughan-e-Kunjad.* The emulsion was made in the various percentage ratio of oil phase: surfactant: aqueous phase.

The surfactant was used in 5 to 20 %. The separation was found in all twenty six (26) versions, i.e., thirteen each (13) versions having tween 20 and tween 80, respectively. As regard to thirteen (13) more versions prepared with gum acacia, it was observed that the four (4) versions prepared by using surfactant gum acacia up to 10% showed separation whereas the other four (4) versions in 15% were found stable. The remaining five (5) versions in 20% were found stable but consistency was found thick. Based on the stability, consistency, homogeneity and grittiness, the versions prepared in 15% were selected for incorporation in gel for making emulgel. For preparation gel, twelve (12) different versions divided six (6) each versions having HPMC and Carbopol 940, respectively in the percentage of 0.5.to 3.0 were prepared. The finalized version was incorporated with HPMC. In this version, it was observed that these versions were free flowing and sticky in nature. These version were found not up to mark. Thus, these versions were rejected.

In another set of six (6) versions based on Carbopol 940 in the percentage of 0.5.to 3.0 were prepared. The finalized version was incorporated with Carbopol 940. In these versions, it was observed that these versions were free flowing, viscous and stable. The prepared final version emulgel was found stable, homogenous, greaseless, thixotropic and emollient. Thus, this test version was finalized for further study. The test emulgel version was characterized as light brown in color, homogenous, no phase separation (i.e., no creaming, no cracking), no sign of grittiness, better stability, high loading efficiency, greaseless, thixotropic, easily spreadable, easily removable, emollient, non-staining, water-soluble, longer shelf life, bio-friendly, pleasing appearance and more production economical with low cost. The test emulgel was found stable during the period of 6 months. The total bacterial count was found to be 4855 micro-organisms per gram (NMT - 100000micro-organisms per gram). The total fungal count was found absent per gram. *E.coli*, *Salmonella*, *S.aureus* and *Pseudomonas* were found absent. The heavy metal analysis showed that Lead (Pb), Arsenic (As), Mercury (Hg) and Cadmium (Cd) were less than permissible limit as per WHO guidelines. No contamination was observed in the test emulgel in 180 days of stability / shelf life. The presence of alkaloids, carbohydrates and proteins in the prepared Emulgel and *Raughan* was detected in the qualitative phytochemical tests.

The mean values pH of 1% & 10% solutions of prepared emulgel were 7.19 ± 0.015 & 7.14 ± 0.028, respectively. The mean Spreadability 17.05 ± 0.075 cm/sec, mean viscosity 6.03 ± 0.152×10^4cps, Extrudability 0.95 ± 0.020, water soluble matter 72.97 ± 0.631, alcohol soluble matter 48.77 ± 0.874, Moisture content 32.83 ± 0.389, Loss in weight on drying at 105^0C 78.81 ± 0.620.

The mean amount of cumulative drug release (CDR) of test emulgel during first 60 minutes was rapid which slowed down as the experiment proceeded. The amount of drug release was found to be 3.6 ± 0.357 % in first 3 minutes, 10.23 ± 0.634 % in 15 minutes, 18.06 ± 0.266 % in 30 minutes, 36.47 ± 0.588 % in 60 minutes, and in 120 minutes CDR was 56.00 ± 0.372 %, 67.83 ± 0.800 % in 240 minutes, and raised up to 75.20 ± 0.467% in 360 minutes. The mean CDR in 24 hours was 78.82 ± 0.557%, whereas the mean amount of cumulative drug release (CDR) of *Raughan* was 1.14 ± 0.055%, in 3 minutes 4.31 ± 0.368% in 15 minutes, 11.52 ± 0.221% in 30 minutes, 23.13 ± 0.318% in 60 minutes, 30.45 ± 0.506% in 120 minutes, 44.91 ± 0.560 % in 240 minutes, The CDR in 360 minutes was 54.78 ± 0.820%. The mean CDR in 24 hours was 58.46 ± 1.055%.

It is noteworthy that there was a vast difference shown in CDR of both versions, i.e., classical prepared *Raughan* as per Unani pharmacopoeial method and prepared in the form of emulgel according to conventional pharmaceutics. In the former the CDR was 58.46%, i.e., half amount of drugs released whereas it was more than two third, i.e., 78.82% in case of latter. The pattern of drug release in both versions was also significant in terms of drug release time after 3,15,30,45 and 60 minutes. The difference of CDR was found about 20 percentages between both versions. It showed a fare amount of drugs released in the body.

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