INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA):IJPS00]
Journal Homepage: https://www.ijpsjournal.com

OPEN ACCESS

Research Article

Formulation And Evaluation Of Resorcinol Gel With Rose Extract For *eczema*

Radha Rai Verma[2], Prerana Sahu*[1], Gyanesh Kumar Sahu[2], Harish Sharma[2]

[1]*Rungta Institute of Pharmaceutical Sciences, Kohka, Bhilai*
[2]*Rungta Institute of Pharmaceutical Sciences & Research, Kohka, Bhilai*

ARTICLE INFO

Received: 08 April 2024
Accepted: 12 April 2024
Published: 16 April 2024
Keywords:
Inflammation, Eczema, Skin.
DOI:
10.5281/zenodo.10981761

ABSTRACT

The widespread interest in drugs derived from plants because of the belief that plants are safe and dependable and with lesser side effects. The interest on herbal medicines their utilization has been increasing rapidly in recent years plant derived substances and herbal medicines have recently attracted the interest towards their versatile application as medicinal plant. Medicinal plants are the richest source of bioactive compounds used in traditional and modern medicines. The cream was prepared and formulation of cream was done. After completion of formulation it was evaluated for its physicochemical parameters like colour, odour, PH, Spreadability, viscocity, consistency, diffusion study, solubility, washability. Also the formulation was evaluated for its stability at various temperature conditions which shows no change in the irritancy, spreadability and diffusion study. Thus it could become a media to use the medicinal properties rose petals powder effectively and easily as a simple dosage form.

INTRODUCTION

Eczema is a condition of the skin that usually occurs on the inside of joints but in severe cases can break out all over the body including face. The skin reacts to a wide range of irritants and allergies and breaks out in a red, itchy, dry and inflamed, rash, usually in patches. The intense scratching eczema provokes can cause bleeding and weeping sores. Eczema is very common, affects up one in five people and can start any age. External factor may be a trigger and people often become well aware of what sets off their eczema, such as a soap or fiber or plant for example. Eczema occurs in both children and adults but usually appears during infancy. Eczema is very common condition and if affects all races and ages including young infants. About 1-2 percent of adults have eczema and as many as 20 percent of children are affected. Eczema can be a difficult frustrating condition. The clinical pharmacist becomes a consultant for

***Corresponding Author:** Prerana Sahu
Address: *Rungta Institute of Pharmaceutical Sciences, Kohka, Bhilai*
Email : preranasahu06.ps@gmail.com
Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

patients who are put on therapy. He informs the patients of drug interactions and adverse reactions. He ensures a rational therapy and safe therapy. He advices doctors about the dosage forms and dosage regimen(1,2,3). A cream is a semisolid formulation comprising more than 20 percent of water and 50 percent of liquid vehicles usually to apply on skin. A drug molecule is also incorporated by dissolving or dispersing it in a suitable base cream various sorts of creams are accessible in the market to protect the consistency of the skin. Many irritable and unpleasant substances sticking on the skin include skin secretion, sweet, salts, sebum as well as deposits of dirt bounded by oily substances require a special process of expulsion. Hence, a cream is eminent in protecting the skin from the above substances (4). Resorcinol topicals treat skin condition like eczema, acne, seborrheic dermatitis and more by working to remove rough, scaley and hardened skin. As a result, resorcinol topicals are also effective when dealing with issues like calluses, corns and warts by breaking up and healing the buildup of hardened and dead skin(5,6,7,8).

MATERIALS AND METHODS:

Materials:-

Resorcinol , Glyceryal , Stearate , Povidone Iodine , Stearic Acid , Mineral Oli (Castor Oil) , Deionized Water , Rose Petals Form Pharmaceutical Laboratory of SRGI , RIPSR , FPS.

Table 1: Ingredients Table

Sr No.	Ingredients
1	Resorcinol (R)
2	Glyceryl Stedrate (GS)
3	Povidone Iodine(PI)
4	Stearic Acid(SA)
5	Mineral Oil(MO)
6	Deionized Water(W)
7	Rose Petals(RP)

Fig 1 : Eczema Cream

METHOD :

Preparation of Cream: The Cream was formulated in Laboratory of Sanjay Rungta Group of Institution , RIPSR (Faculty Of Pharmaceutical Sciences) , Bhilai . In this study cream of different ratio ware prepared (9,10).

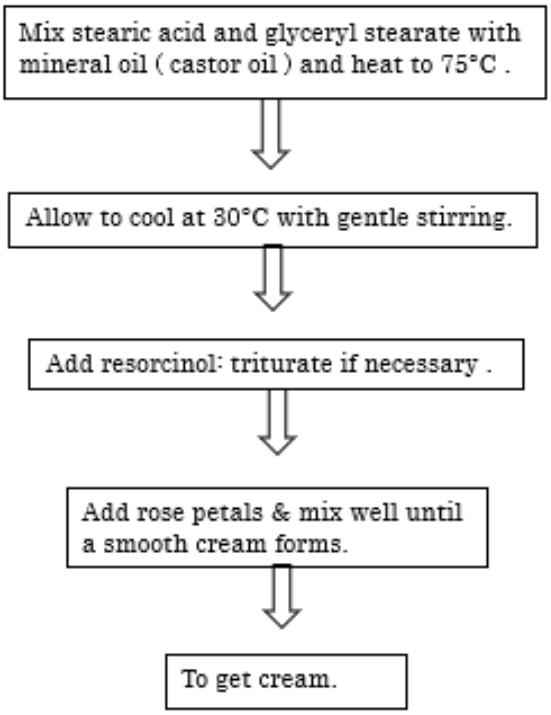

Fig 2 : Procedure for preparation of cream . five formulationsware prepared in different ratios of chemicals for the preliminary studies.

Table 2 : Formulation table in different ratio

Characterization:

After getting the best formula based on accurate resorcinol , glyceryl stearate , povidone iodine , stearic acid , mineral oil (castoroil) , deionized water & rose pepals, it was further studied for it,s

Sr. No	Sample	R gm	GS Gm	PI gm	SA gm	MO ml	W ml	RP (gm)
1.	F1	2	3	1	0.21	2	15	2.2 g
2.	F2	2.47	3.71	0.24	0.12	1.98	16.46	10 gm.
3.	F3	1.5	2.98	0.22	0.10	1.50	16	9 gm.
4.	F4	1.5	2.76	0.24	0.13	2	17	8 gm.
5.	F5	2	3.0	1.13	0.20	2	15	8.5 g

characterization such as colour , appearance , odour , Feel of application , extrudability , PH value , viscosity , spreadability , stability , grittiness , Homogenecity , in vivo study(11,12).All this studies are conducted in the laboratory of SRGI , RIPSR , FPS .

Physical appearance:

The physical appearance was vi sually checked for the color , appearance , odour, feel of application cream formulation was noted(13,14,15).

PH value :

The PH of cream formulations were determined by using the digital PH meter , one gram of cream was dissolved in 100ml distilled water & stored for two hours . Electrodes were completely dipped into the cream formulations and PH was noted . the measurement of PH of each formulation was done(14).

Extrudabilitydetermination:

The cream formulations were filled into collapsible metal tubes .The tubes were pressed to extrude the material and the extrudability of the formulations was checked .The extrudability the

formulations was determined in terms of weight in grams required to extrude a 0.5 c.m. ribbon of cream in 10 seconds(16,17).

Viscosity determination :

The viscosity of the prepared cream formulations was measured by brook field viscometer model WDV-8 .The sufficient quantity of cream was filled in wide mouth jar separately .The height of the cream filled in the wide mouth jar should sufficiently allow dipping the spindle .The RPM of the spindle was adjusted to 2.5 RPM .The viscosities of the formulations were recorded(18,19).

Spreadability :

It indicates the extent of area to which cream readily spreads on application to skin or affected part .The therapeutic potency of a formulation also depends upon its spressedvalue .Spreadability is expressed in trems of time in seconds taken by two slides to slip off form cream which is placed in between the slides the under the direction of certain load .Lesser the time taken for the separation of twoslides , better the spreadability(20,21).It is calculated by using the formula

S = M.L/T where,

M = Weight tied to upper slide

L = Length of glass slide

T = Time taken to separate the slides.

Stability Studies :

The stability studies were carried out for all the prepared cream formulations by freeze – thaw cycling .Here , by subjecting the formulations to a temperature of 40°C for one month , then at 25°C for one month and then 40°C for one month and syneresis was observed . After this , the cream is exposed to ambient room temperature and liquid exudate separating is noted(22,23,24).

Homogeneity:

After the cream formulations have been set in the container , all developed creams were tested for their appedrance and presence of any lumps , flocculates or aggregates(25,26,27).

RESULT AND DISCUSSION :

1. Physical appearance:

The physical appearance test of 1 cream is done by observing it through sensory organ & following observation is made.

Table 3: Organoleptic Properties

Sr. No	Physical appearance	Result
1.	Color	Pale Pink color
2.	Odor	Pleasant odor
3.	Appearance	Translucent
4.	Feel of application	Smooth

2. PH Value:

PH values of the sample are measured by using digital pH meter. The graph indicates that all the result of pH values are in range between 6.8 -7.4 .These values indicate that cream is suitable for topical administration .The PH of the prepared cream was 6.9 which is superior for every type of skin.

Table 4: pH Value of formulation

S. No.	Sample	pH
1.	F1	6.8
2.	F2	6.9
3.	F3	7.0
4.	F4	7.2
5.	F5	7.1

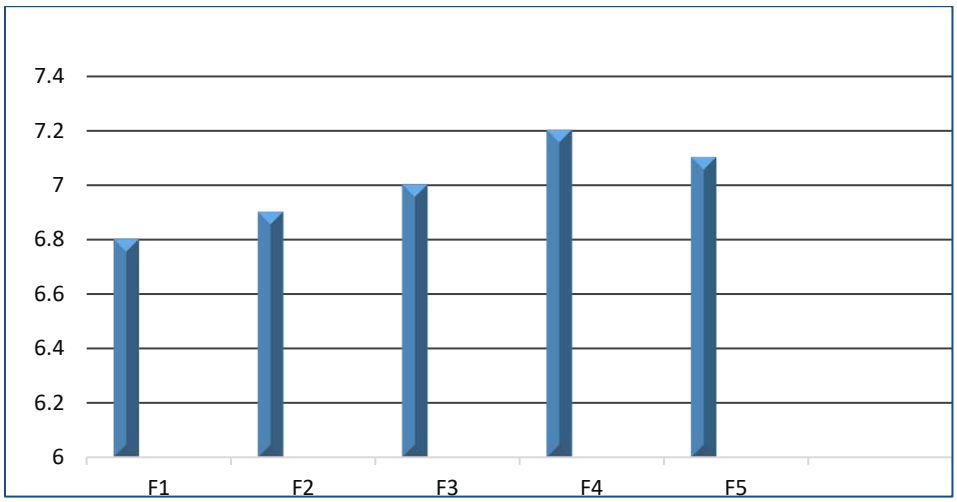

Fig 3 : Graphical representation of PH Value

Viscosity Measurement : Viscosity of the sample is measured by using brook field viscometer model – WDV – 8 .

Table 5: Result recorded for viscosity measurement

Sr. No.	Sample	Viscosity
1.	F1	1,00,080
2.	F2	1,52,030
3.	F3	50,075
4.	F4	60,000
5.	F5	56,089

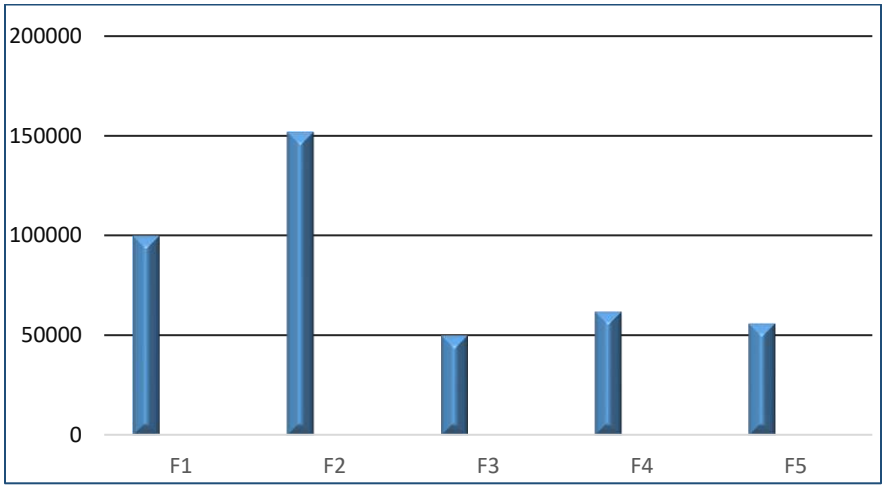

Fig 4: Graphical representation of viscosity

Homogeneity: It is tested for their appearance & presence of any lumps, flocculates or aggregates .

Table 6: Homogeneity

Sr No.	Sample	Homogeneity
1	F1	Flocculates
2	F2	Flocculates
3	F3	Aggregates
4	F4	Aggregates
5	F5	Aggregates

In – vivo Studies :

In – Vivo studies are performed by the help of franz diffusion cell in the goat skin .

Fig 5: Working of Franz diffusion cell

Fig 6: Determination of absorbance by UV spectroscopy

Table 7: Absorption range

Time	F1	F2	F3	F4	F5
0 min.	0.00	0.00	0.00	0.00	0.00
2.5 min.	0.110	0.119	0.105	0.111	0.107
5 min.	0.201	0.220	0.215	0.299	0.249
10 min.	0.371	0.358	0.308	0.443	0.440
12.5 min.	0.458	0.463	0.399	0.513	0.416
15 min.	0.458	0.463	0.399	0.513	0.416
30 min.	0.458	0.463	0.399	0.513	0.416

Stability Testing:

Table 8: Stability data after 7 days .

Sr. No.	Sample	Temperature °c		
		2 – 4 °c	20-25°c	35-40°c
1	F1	Stable	1	F1
2	F2	Stable	2	F2
3	F3	Stable	3	F3
4	F4	Stable	4	F4
5	F5	Stable	5	F5

Table 9: Stability data after 14 days

Sr. No.	Sample	Temperature °c		
		2 – 4 °c	20 – 25 °c	35– 40 °c
1.	F1	Stable	Stable	Un-stable
2.	F2	Stable	Stable	Stable
3.	F3	Stable	Un-stable	Un-stable
4.	F4	Stable	Un-stable	Un-stable
5.	F5	Stable	Stable	Un-stable

Table 10: Stability data after 21 days .

Sr. No.	Sample	Temperature °c		
		2 – 4 °c	20 – 25 °c	35– 40 °c
1.	F1	Stable	Stable	Un-stable
2.	F2	Stable	Stable	Stable
3.	F3	Stable	Un-stable	Un-stable
4.	F4	Stable	Un-stable	Un-stable
5.	F5	Stable	Stable	Un-stable

Table 11: Stability data after 28 days .

Sr. No.	Sample	Temperature °c		
		2 – 4 °c	20 – 25°c	35– 40 °c
1.	F1	Stable	Un-stable	Un-stable
2.	F2	Stable	Stable	Un-stable
3.	F3	Stable	Un-stable	Un-stable
4.	F4	Stable	Un-stable	Un-stable
5.	F5	Stable	Stable	Un-stable

Spreadability :

Table 12 :Spreadability

Sr. No.	Sample	Spreadability (g.cm/sec.)
1.	F1	10.9
2.	F2	10.2
3.	F3	6.9
4.	F4	8.7
5.	F5	7.9

CONCLUSION:

This study is further aimed to perform in vivo studies for eczema in the concentration of resorcinol reaching into the skin and to study its effect in treatment of eczema.

REFERENCE:

1. Polderman MC, Wintzen M, le Cessie S, Pavel S (2005). “UVA-1 cold light therapy in the treatment of atopic dermatitis: 61 patients treated in the Leiden University Medical CenterPhotodermatology, photoimmunology& photomedicine 21 (2): 93–6. Doi:10.1111/j.1600-0781.2005.00150.x. PMID 15752127.
2. Stern RS (2001). “The risk of melanoma in association with long-term exposure to PUVA”. J. Am. Acad. Dermatol. 44 (5): 755–61. Doi: 10 . 1067/ mjd. 2001 .114576 . PMID 11312420.
3. National Jewish Medical and Research Center (16 March 2009). Food allergies commonly misdiagnosed, especially among eczema patients. Press release. http://www.nationaljewish.org/about/mediacenter/pressreleases/2009/food-allergiescommonly-misdiagnosed.aspx. Retrieved on 2009-03-20.
4. RE Ugandar RE and Deivi KS. “Formulation and evaluation of oil based cream “. International Journal of pharmaceutical science and Research 4.9 (2013) : 3375-3380.
5. Palmer A. Review of article on Over-the-Counter Treatments for Acne:Published on 30 March 2019.

6. 6. . Sahu P, Sahu GK, Sharma H, Kaur CD. Formulation, characterization and ex vivo evaluation of epinephrine transdermal patches. Research Journal of Pharmacy and Technology. 2020;13(4):1684-92.
7. Sahu P, Mishra S, Sahu GK, Sharma H, Kaur CD. Formulation and Characterization of Resorcinol Gel. Research Journal of Pharmaceutical Dosage Forms and Technology. 2019;11(3):159-63.
8. Ali S, Sahu A, Sahu P, Sharma H, Gulati M, Menon SA, Anik S, Sahu GK. A Global Public Health Emergency: COVID-19.
9. Sahu P, Mishra S, Sahu GK, Sharma H, Kaur CD. Formulation and Characterization of Resorcinol Peel. Research Journal of Pharmacy and Technology. 2019;12(11):5437-43
10. Sahu P, Bhimte P, Sharma H, kumar Sahu G. A Modern Era Prospective of Novel Drug Delivery System.
11. Nagwanshi P, Sahu L, Sahu P, Sahu A, Sharma H, Sahu G. Emphasis of Phytoconstituent in the treatment of cancer. Research Journal of Pharmaceutical Dosage Forms and Technology. 2020;12(3):169-77.
12. Sahu L, Nagwanshi P, Sahu P, Sahu A, Sahu G, Sharma H. Novel Approaches of Treatment of Cancer: Nanoparticle. Research Journal of Pharmaceutical Dosage Forms and Technology. 2020;12(2):115-24.
13. Sahu P, Sahu GK, Sharma H, Kaur CD. Formulation, characterization and ex vivo evaluation of epinephrine transdermal patches. Research Journal of Pharmacy and Technology. 2020;13(4):1684-92.
14. Sahu P, Nema RK. Bioenhancer: an agent for increasing bioavailability. World J Pharm Res. 2021 Apr 1;10(6):613-34.
15. Sahu M, Choubey R, Sahu P, Mishra A. A comparative molecular docking study of Syzygium cumini to understand the binding pattern with four different proteins Used for anti–diabetic activity.
16. Sahu P, Sahu G, Sharma H, Sahu GK. Preparation and Characterization of Nutraceutical Drink.
17. Tandi DY, Sahu P, Sharma H, Nema RK, Sahu GK. Piperine: Physicochemical Aspects for Lung Cancer. International Journal of Biology, Pharmacy and Allied Sciences, January 2023, 12(1): 294-304
18. Sahu P, Bhimte P, Singh S, Sarparaj S, Sahu N, Sharma H, Sahu G K. Formulation of polyherbal soap and evaluation of its physic-chemical parameters. Acta Scientific Pharmaceutical Sciences, Vol- 7, Iss 4 (April 2023), 2581-5423
19. Sahu P, Yadav S, Bhimte P, Sarparaj S, Sahu N, Sharma H, Sahu G K. Development & Characterization of Vanishing Cream. Acta Scientific Pharmaceutical Sciences, Vol- 7, Iss 4 (May-June 2023), 2581-5423
20. Sahu P, Chandravanshi A, Bhuneshwar, Singh S, Sharma H, Sahu G K. Development of Analgesic Chewable gummy tablet for palatable drug delivery. International Journal for Multidisciplinary Research, Vol- 5, Iss 2 (March- April 2023), 2582-2160
21. Sahu P, Sahu G, Sharma H, Sahu G K. Preparation & Characterization of nutraceutical drink. International Journal for Multidisciplinary Research, Vol- 5, Iss 2 (March- April 2023), 2582-2160
22. Sahu P, Nema R K. A Peer Review on Herbal Cosmetics and Skin Care. World Journal of Pharmacy and Pharmaceutical Sciences; Vol-10, Iss-7 (June 2021): 613-634.
23. Sahu P, Nema R K. Bioenhancer: An Agent for Increasing Bioavailability. World Journal of Pharmaceutical Research; Vol-8, Iss-6 (May 2021): 613-634
24. Sahu P, Nema R K. Covid-19: Pandemic in India; an update. European Journal of

Biomedical and Pharmaceutical sciences; Vol-8, Iss-6 (June 2021): 312-320

25. Kaushal R, Sahu P, Kesharwani A, Nema R K, Sharma H, Sahu G K. A brief review on Cushing‟s syndrome. European Journal of Biomedical and Pharmaceutical Sciences; Vol 10, Iss- 11
26. Kakara M, Dasari S, Gundupalli MP, Kangsadan T, Katam K. Understanding the Environmental Distribution and Potential Health Risks of Pollutants from Deodorant Products: A Review. InE3S Web of Conferences 2023 (Vol. 428, p. 02015). EDP Sciences.
27. Teerasumran P, Velliou E, Bai S, Cai Q. Deodorants and antiperspirants: New trends in their active agents and testing methods. International journal of cosmetic science. 2023 Mar

HOW TO CITE: Radha Rai Verma, Prerana Sahu, Gyanesh Kumar Sahu, Harish Sharma, Formulation And Evaluation Of Resorcinol Gel With Rose Extract For *eczema*, Int. J. of Pharm. Sci., 2024, Vol 2, Issue 4, 738-746. https://doi.org/10.5281/zenodo.10981761