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Formulation & Evaluation of Paper Soap Strip from Orange Peel Extract

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Abstract

The aim of the formulation and Evaluation of paper soap by using Orange peel oil with a rose water. .Determine the quality of soap which is for disposable hand wash Orange oil is produced by cells within the rind of an orangefruit (Citrus sinensis fruit). The essential oils is extracted as a by-product of orange juice production by centrifugation, producing a cold- pressed oil. The therapeutic uses of orange oil are antiseptic, antidepressant,antispasmodic, anti-inflammatory, carminative, diuretic, cholagogue, sedative and tonic. It helps to improve the skin naturally. Orange peels contain citric acid which helps for lightening and brightening the skin. Different parameters were used to evaluate the paper soap such as foam test, solubility test, Thickness test, size and shape.

KEYWORDS: Portulaca oleracea, Purslane, gel formulation, antioxidant

Introduction

Paper soap is a thin soap sheet. It is an anionic surfactant that is used in conjunction with water for washing and cleaning. It is portable, cheap and easy to Paper Soap is a sheet of soap that is dry, light weight, and can dissolve with a small amount of water within seconds. It is a convenient, pocket-sized cleaning product that can be used on hands and face as well. Our paper soap sheets are infused with essential oils Lime Paper Soap Strips, Green Apple Paper Soap Strips, Cologne Paper Soap Strips, Jasmine Paper Soap Strips .Lavender Paper Soap Strips, Green Orchid Paper Soap Strips, Rose Paper Soap Strips, Blue Lily Paper Soap Strips.

Orange oil is an essential oil produced by cells within the rind of an orange fruit (Citrus sinensis fruit). In contrast to most essential oils, it is extracted as a by- product of orange juice production by centrifugation, producing a cold-pressed oil. Chemical composition. The main chemical components of orange oil are apinene, sabinene, myrcene, limonene, linalool, citronellal, neral and geranial. The therapeutic properties of orange oil are antiseptic, anti-depressant, antispasmodic, anti-inflammatory, carminative, diuretic, cholagogue, sedative and tonic. It helps to lighten and brighten the skin naturally. Orange peels contain citric acid that helps lighten and brighten the skin organically. Regular use of orange peel can help remove tan and give your skin a youthful radiance.

Rose water has antiseptic and antibacterial properties that can help wounds healfaster. These properties can help clean and fight off infection of cuts and burns. They can also help cuts, burns, and even scars heal faster. Orange fruit is the bestsource of Vitamin C, which is useful for wellbeing and healthy skin too. Essentialorange oil is germicidal and anti-inflammatory which makes it an ideal ingredientfor skin The

abundant nutrients and antioxidants in Orange peel prevent your skinfrom getting too oily or dry. When applied to skin, it also works as a toner, removing dead skin and dirt and tightening pores Being a phenomenal source of Vitamin C, oranges are extremely useful for skin. Orange peel powder helps in reduction of dark spots and blemishes.

Orange peels are a natural bleaching agent that helps to reduce dark patches on the kin and viably expel them with time. Orange peel is considered as a beneficialfor face and healthy skin as it cures clogged pores, dead cells, skin inflammation,pores, imperfections, dark circles, dry skin, and lights up your face. It can likewisebe utilized with milk or curd for additional shine or for evacuating tan.

Orange oil is available in ductless gland present in the peel of the orange fruits. D-Limonene (around 90 %) is the principle component of orange peel essential oil, which is the main hydrocarbon present.

The d-limonene is extracted from orange skins or solids. It is broadly known for its lovely fragrance and degreasing properties. D-limonene is at present being utilized in numerous applications, for example, chlorinated solvents substitutions,hand cleaner sand sewage treatment. The aim of this study was to develop the soap strips from extract of orange peel and evaluate the satisfaction by users.

Figure 1: Orange Peel

Advantages

1. Removes suntan
2. Exfoliates dead skin
3. Improves skin tone
4. Fights premature skin aging
5. Household uses of orange peels

Disadvantages

1. Prolonged exposure to Orange Oil on the skin can cause contact dermatitis,skin burnand skin irritation.
2. Pregnant women and breastfeeding mothers should avoid using Orange Oil.
3. People with sensitive skin should avoid Orange Oil.
4. A high dose of Orange Oil can cause nausea, vomiting and can hamperappetite.
5. People who are allergic to citrus fruits should avoid using Orange Oil.

Drug & Excipient Profile:

PLANT PROFILE	
Botanical Name	Citrus sinensis
Synonym	Peach,Apricot,Tangerine,Mandarin ,Pomelo, Valencia ,Bloodorange,

	Navel orange
Common name	Sweet orange
Family	Rutaceae
Order	Sapindales
Kingdom	Plantae
Genus	Citrus
Subgenus	Citrus sinensis
Active Phytochemicals	Vitamin c, Flavonoids , Carotenoids, phenolic compounds , Pectin,Essentional, Carbohydrates.
Part used for Research	Orange peel
General uses	Treat coughs, Cold, Intestinal gas , Acid indigation, Antioxidnat, Anti-inflammatory.

Table 1: plant profile

Excipient Profile:

Excipients	USES
Rose water	**Cleansing**
Soap base	**Base**
Ethanol	**Extraction Vehicle**
Butter paper	**Paper base**

Table 2: Excipient profile

Material & Methods:

1) Orange Peel :

Figure 2 : Orange Peel

2) Extracted orange oil

Orange oil treats various skin conditions such as acne, Reduce pain or inflammation. Relieve stomach upset. Use as a natural household cleaner. Add a pleasant scent to a room or to products like perfumes and cleaners. Give flavor to a variety of foods andbeverages. Lift your mood or reduce stress. Aromatherapy with orange essential oil appears to reduce symptoms of anxiety and depression.

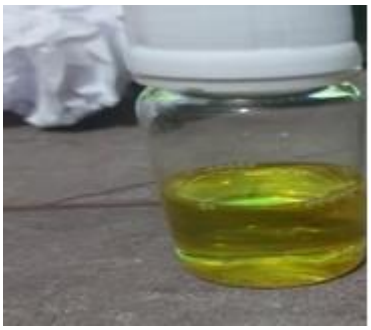

Figure 3: Extracted Orange Oil

3) Rose water

Rose water is created by distilling rose petals with steam. Rose water is fragrant,and it's sometimes used as a mild natural fragrance as an alternative to chemical-filled perfumes. Rose water has been used for thousands of years, including in the middle Ages. It's thought to have originated in what is now Iran. It's been used traditionally in both beauty products and food and drink products. It also comes with plenty of potential health benefits.it helps to. Reduces skin redness, Helps prevent and treats infections, Contains antioxidants .Rose water has antiseptic andantibacterial properties Trusted Source that can help wounds heal faster. These properties can help clean and fight off infection of cuts and burns.

Figure 4 : Rose Water

4) Soap base

Melt and pour soap base or a simple liquid hand washes soap base can be usedto prepare the paper soap strips. They give similar results and dissolve well withwater.

Figure 5 : Soap Base

5) Papers:

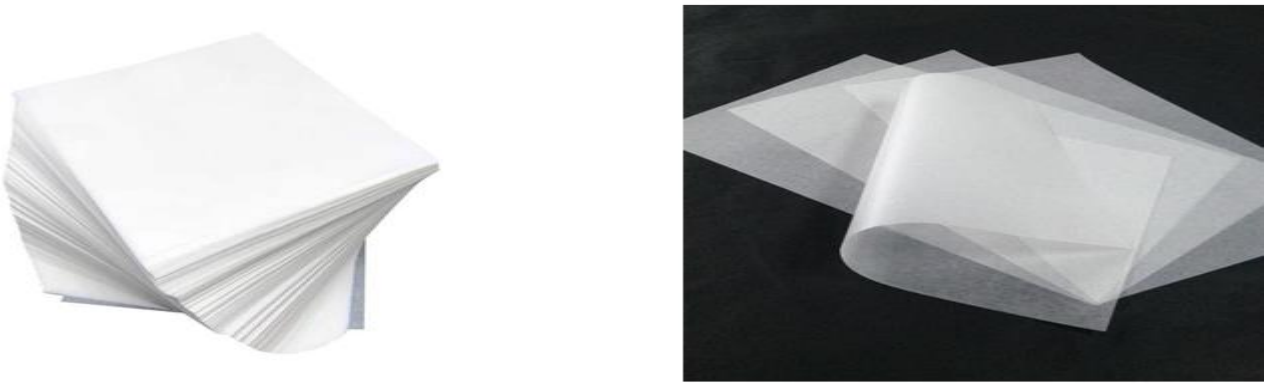

Figure 6: paper used for paper strip

- **Formulation Table:**

Ingredients	Quantity
Extracted orange oil	**5ml**
Rose water	**0.6 ml**
Soap base	**Q.S**
Ethanol	**500 ml**
Butter paper	**Q.S**

Table 3: formulation Table

- **Experimental Work:**

Methods of Extraction :

Orange peel extraction - Different methods of extraction

1. Reflux Extraction
2. Soxhlet Extraction
3. Pressurized liquid Extraction
4. Supercritical fluid Extraction
5. Ultrasound assisted Extraction
6. Distillation Method.

- **Soxhlet Apparatus Method**

Orange peel was cut into small pieces and dried in direct sunlight until completelydry. Dried orange peels were coarsely grinded. Orange peel powder was weighed,and the weight recorded. The weighed sample was dropped in the Soxhlet extractor apparatus orange peel powder was weighed, and the weight recorded. The weighed sample was dropped in the Soxhlet extractor apparatus The extraction was carried out using normal Ethanol In the Soxhlet apparatus, the solvent in the round bottom flask was heated from the heating mantle to becomeevaporated and got condensed down through the sample where it was able to extract the oil along thereby, giving a mixture of oil and solvent, which was later separated filtered through Whatman®No.1 Ethanol was evaporated under pressure by rotary evaporator to leave orange oil behind. 7.4 ml oil was collectedfrom 1kg of orange peel.

Figure 7 :Soxhlet Extraction

Separation of Essential Oils:

When the mixture is poured into a Separatory funnel, the oil and water separate into two distinctlayers as shown in fig. Since water is denser than oil, it is collected at the bottom of the funnel. After this the funnel tap is opened and the liquid at the bottom of the funnel is transferred into a container.

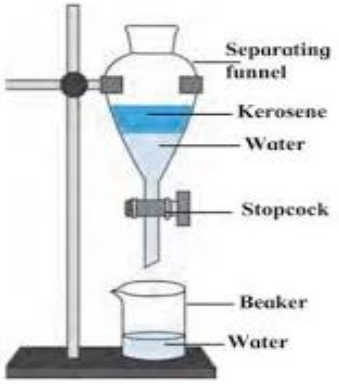

Figure 8 : Separation of Essential Oil

1) Preparation of soap strips

A. Take better paper
B. Cut in shape & size
C. To take a soap base and melted with the help of heating bath
D. Add rose water and extract orange oil Mix it properly
E. The mixture which apply to the better paper with the dipping process
F. place it for drying.

Figure 9: Melted Soap Base

Figure 10: Dipping Process

Figure 11: Drying Process

Figure 12: Prepared Paper Soap Str

- **Result & Discussion:**

Evaluation of Herbal Paper Soap

1) Organoleptic Parameters:

A. Colour
B. Odour
C. Appearance

Physical evaluation of herbal paper soap: The herbal paper soap was formulated and was evaluated for following properties

A. PH: The pH was determined before and after the preparation of paper soap. At first the liquid soap was prepared and the pH was detected by using litmus paper the result was red litmus paper turned blue in Colour and blue litmus remained unchanged. Then after the production of paper soaps the piece of paper soap was taken an added into water a then Shaked fully then the pH meter was used for testing of pH.

B. Foam retention: The soap strips was taken and added in water solution in a measuring cylinder the cylinder was covered with hand and was shaken for 10 times. The volume of the foam was checked in 1 minute interval. The foam height was found to be

C. Foam Height: The sample was dispersed in 20 ml of distilled water and then transferred into the Measuring cylinder and then it was Shaked for a min and immediately its foam height was calculated as F1 and then after 10 – 15 min measure the foam height and the foam height were measured and noted as F2 it should be 2 cm. Foam height calculation – F1 – F2.

D. Primary skin irritation test: For this at least three volunteers was selected and prepared soap strips was given an applying in hand the amount of irritation was been checked.

Result:

1) Organoleptic Parameters:

A) Evaluation of herbs used organoleptic evaluation

A. Colour - orange
B. Odour – Aromatic
C. Appearance – Good

B) Evaluation of Liquid Soap Organoleptic evaluation

A. Colour –white
B. Odour – Pleasant, Aromatic.
C. Clarity – The test was done by keeping the liquid soap under the white background

C) Evaluation of paper soap organoleptic evaluation

A. Size -3/7cm.
B. Shape-rectangle
C. Odour-aromatic, pleasant, sweet.

- **Physical evaluation of herbal paper soap:**

The herbal paper soap was formulated and was evaluated for following properties

A. PH:

Figure 13 :pH Of paper soap

- **Conclusion: PH of Paper soap Was found to be 7.04.**

B. Foam Retention:

Figure 14 :Foam Retention of paper soap

- **Conclusion: Foam Retension Was found to be Good**

C. Foam Height

Figure 15 Foam Height of paper soap

F1 = 3 cm F2 = 4.5 cm

F2 –F1= 4.5 - 3 = 1.5 cm

- **Conclusion: Foam Height Was found to be 1.5 cm**

D. Primary skin irritation test:

Figure 16 :Irritation Test of paper soap

- **Conclusion: No Irritation was Observed.**

Sr No.	Parameter	Observation
1	Colour	**White**
2	Size and shape	**3*7 cm**
3	Irritation	**No irritation**
4	Foam Retention	**Good**
5	Foam test (2 batches)	**1.5**
6	PH determination	**7.4**

References:

1. Alamzafar (queens, NY, US 07/25 2002. One Time Use disposable paper soapand method of making application 200-20098904
2. Dr. Nivedita, Dadu, 01 February 2017. The importance of right soap 2017, retrievedfrom<http//www.dailypioneer.com/Sundayedition/agenda/halth/the importance-of-right-sop.html 1.
3. Sandhya borse et al/J. Pharm. Sci. & Res. Vol. 11(6) 2019Formulation andEvaluation of Two Layered Soap Containing Orange Peel Extracts
4. Akula Srujana, N. Navya Priya and Anis Mirza et.al2020 Study on PapayaAntioxidants and Solid soap formulation based on crude papain.
5. Dr. Saraswathu, Dr. Kavitha PN 05-07-2021-Formulation an evaluation of herbal paper soap.
6. Johnson SA, Goddard PA, I liffe C, Timmins B. Rickard AH, Robson G, et al. Comparative susceptibility of resident and transient hand bacteria to Para- chlorometa-xylenol and triclosan J. Appl. Microbial 2002:93-136-344.
7. Martin MA et al Orange Peel organic waste energetic resource? University IbnTo fail, Faculy dos Sciences, Kenstra 2008.
8. Javed S Ahmad R. Shahzad K. Nawaz S. Saeeds andSaleem, Y. 2013. Chemical Constituents, Antimicrobial and Antioxidant Activity of Essential Oil of Citrus limetta var. Mitha (sweet lime) Peel in Pakistan. African Journal of MicrobiologyResearch. 7(24): 3071-3077..
9. Mithal BM. Saha RN, (2008), A Handbook of Cosmetics. 1st ed. Published by M.K Jain for Vallabh. Prakashan New Delhi, p. 11-20.
10. Amit B Patil, Purushottam Rao K. Charyulu RN, Prabhu P. Marina Koland, (2011), Development and

evaluation of medicated soap strips of clotrimazole fordermal infections. Int J Res Pharm Sci., 2(3):525-28

11. Aneja KK, Pranay Jain, Raman Aneja, (2008), Textbook of basic and appliedmicrobiology Isted New age international publishers, p.622-37.
12. Purushotham Rao K. Timothy Maitho, Kamamia EK, Kaushik R. Volumbhia.Patil SK. Sagare P. (2011).Design of clotrimazole soap bars for skin diseases. Int'lCarr Pharm Res., 3(4):41-45.
13. Sharma PP. (2005) Cosmetics-Formulations, manufacturing, quality control, 3rd ed. Vandana Publications Delhi.p.565-81.