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Formulation And Evaluation Of Herbal Face Wash For Sensitive Skin.

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❖ **ABSTRACT:**

This research aims to the formulation and evaluation of herbal Facewash containing , Butea Monosperma (palash) used for its various therapeutic properties, including anti- inflammatory, anti-microbial, and Antioxident effects. And also use rice water which have antioxidant, anti inflammatory properties which help in skin smoothing and lighting. The research discusses the formulation aspects such as selection of Surfactant and exipeant. optimization of Facewash Formulation process and evaluation parameters including physical characteristics, PH, cleansing efficacy, foaming properties, stability and environmental impact.

❖ **KEYWORDS :** Sensitive skin, Beutea Monosperma (palash), Anti inflammatory, antioxidant, Evaluation Test, Rice water

❖ INTRODUCTION

Sensitive skin:

Sensitive skin is characterise by its reactions to products, foods and environmental factors in a manner that is more persistent with constant triggers. So Herbal face wash preparation is Organic crafted from organic ingredients. The formulation of the face wash provides sustainability and avoids harmful chemicals, making it an eco-friendly choice. The manufacturing process involves organic extract, mild surfactant, and natural thickening agent used.

Advantages of Herbal cosmetics

1) Herbal cosmetic is natural and free from all the synthetic chemicals which generally may turn out to be lethal to skin.
2)Herbal face wash is made from natural ingredients that are non-toxic and antiseptic.
3) Herbal face wash is highly moisturising and does not dry out the skin.
4) Herbal face wash is better from environment, does not contain harmful chemicals.
5)Need a natural face wash, which made by plant-based ingredients and botanical extracts. They offer a range of benefits for the skin due to the presence of natural ingredients.

Potential benefits of using herbal face wash:

1) **Gentle and Mild**: Herbal face wash are typically gentle and mild on the skin. They are free from harsh chemicals, synthetic fragrances, and artificial additives that can cause irritation or dryness.

2) Nourishing and Moisturizing: often contain natural extract and glycerine These ingredients help moisturize the skin, keeping it soft, supple, and hydrated.

3) Cleansing: Herbal Face wash effectively remove oil, debris, and pollutants from the skin without eroding its natural oils. They can lessen excessive drying and support the preservation of the skin's natural pH balance.

4) Natural Fragrances: sourced from botanical sources. The pleasant perfume of these natural fragrances is produced without the use of artificial chemicals, which may find annoying for sensitive skin.

5) Appropriate for Skin Sensitive: Herbal soaps are often appropriate for skin types that are sensitive because of their natural composition.

6) Antioxidant Properties: plant extracts rich in antioxidants. These antioxidants can help protect the skin from damage caused by free radicals, which contribute to premature aging and sensitivity.

7) Soothing and Calming: herbs and botanical extracts found in herbal face wash, like Butea monosperma and rice water have soothing and calming properties. They can help relieve skin irritation, inflammation, or itchiness.

- **Benefits Cleansing**: Herbal face wash effectively cleanse the skin, removing dirt, oil, and impurities without stripping away the skin's natural oils. They can help maintain the skin's natural pH balance and prevent excessive drying.

- **Moisturizing**: Many herbal face wash contain extract and moisturizing agent such as glycerine which help moisturize and hydrate the skin. These rice water help in forming a protective barrier preventing dryness. It makes the skin soft, supple, and smooth.

- **Soothing and calming:** Herbal face wash frequently include herbs and botanical extracts renowned for their soothing and calming attributes. Ingredients like palash extract and rice water can help alleviate skin irritation, redness, and inflammation, providing relief for conditions like eczema, or sunburn.

- **Anti-aging effects:** herbal face wash incorporate anti-oxidant-rich ingredients which effectively combat free radicals and diminish the signs of aging. These antioxidants shield the skin from oxidative stress, contributing to a youthful and glowing complexion.

- **Cleansing and detoxifying**: Herbal face wash cleanse the skin with great efficacy by eliminating impurities, excess oil, and dirt, all while preserving its natural oils .face wash which help purify the skin, prevent acne breakouts, and pro-mote a healthier complexion

DRUG PROFILE

❖ **Drug Profile**

1) Butea Monosperma

- **Plan**t - Butea Monosperma
- **Synonyms:** – parna , palash
- **Geographical source**:- Bangladesh, India, Nepal, Pakistan, Thailand, srilanka, Myanmar, western Indonesia
- **Taxonomical classification –**

Kingdom – Plantae
Family – Fabaceae
Genus – Butea Species
Butea Monosperma Chemical constituents the chemical constituents of the Palash flower include glucosides , butrin, isobutrin, and glucosides, quercetin and kaempferol.
Chemical Structure – Butrin
Molecular formula – C27H32O15
Molar mass -596.53 g/mol

- **Organoleptic properties**

Colour – Orange
Odour –sharp arebic
Taste – Bitter, pungent and astringent
Height – 15 to 25 meters

- **Flower –** bright orange red Seed - 3 cm long, ellipsoid and flattened. Kidney shaped
- **Therapeutic category –** This traditional medicinal plant has been used for thousands of years in Ayurvedic medicine for various therapeutic purposes**.**
- **Pharmacological Properties:** Anti-inflammatory: Palash exhibits anti-inflammatory effects. Antioxidant: It possesses antioxidant properties. Antimicrobial: The plant has antimicrobial activity. Analgesic: Palash can provide pain relief.
- **Traditional Uses:** Skin Disorders: Palash is used to treat skin-related issues. Pain Management: It helps reduce pain.

Fig.no.1 Beutea Monosperma (Palash Flowers)

2) Rice

- **Plant: -** Rice
- **Synonyms:-**Oryza sativa
- **Geographical source:-** Rice cultivation originated in Asia. with the most a greed-upon theory suggesting it originated in India or china.
- **Taxonomical classification :-**

Kingdom - Plantae
Family - Gramineae
Genus - Oryza
Chemical constituents:- Carbohydrate, amylose amylopectin,lipid,fibres,minerals.
Chemical structure:- Amylose
Molecular.Formula :- Co H10O5
Molar mass :- 0.52 to 1.96×10^8g/ml time

- **Organoleptic properties**

Colour- white
Odour- mild starchy smell
Taste- mild slightly sweet flavour
Height -1.2 metrel 4 feet (Plant)

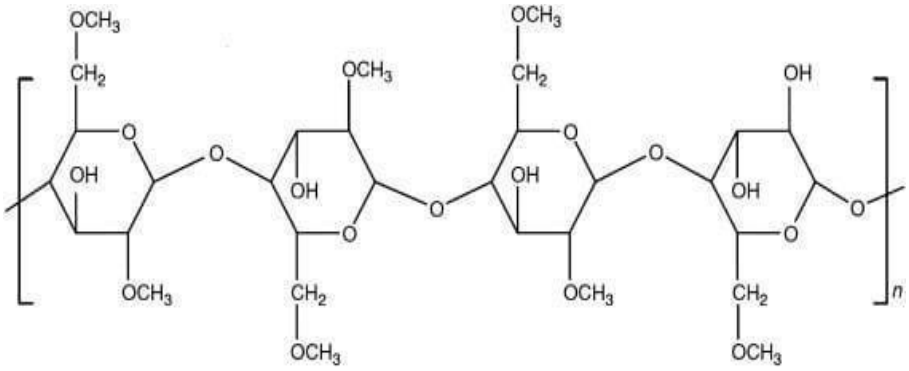
- **Seed -** It has various shapes short, medium long & Extra-Tong.
- **Therapeutic category :-** Nutraceutical and also including antioxidant, Functional food also including anti inflammatory& Anticancer.
- **Pharmacological properties :-** including Anti diabetic, cardiovascular & protective effect.
- **Traditional Uses :-**

1) Rice has been used as a staple food, a medicinal ingredient and various cultural & religious practices.
2) Also used in Alcoholic Beverages.
3) fertilizer - Rice bran and husks can be used to make fertilizer.
4) Rice water used for face to improve skin texture and elasticity.

Fig.no.2 Rice grains

EXCIPIENTS PROFILE

Methylcellulose:



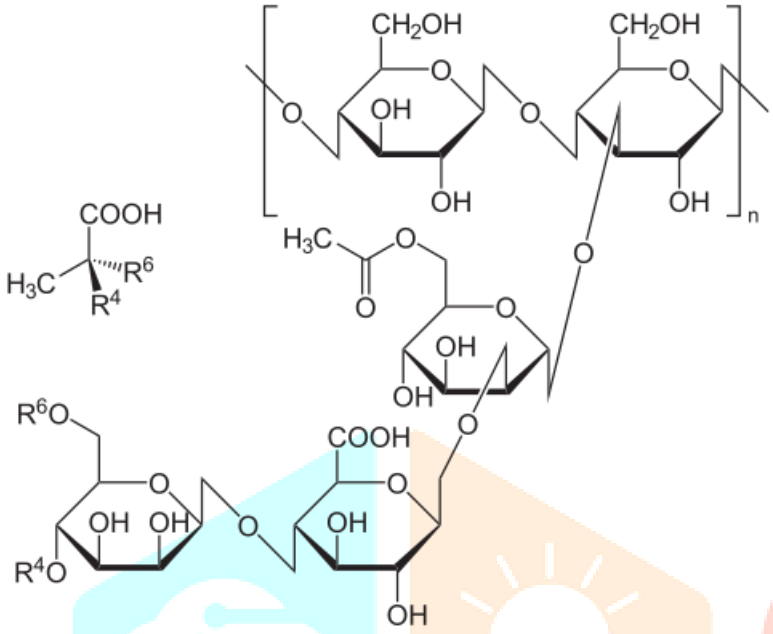
- Molecular Formula – C20H38011
- Molecular Weight – 454.5g/mol
- Melting Point-290-305° degree Celsius
- Colour –White
- Taste – Tasteless
- Odour – Odourless
- Nature –Natural

Description:

In tablet formulations, low- or medium-viscosity grades of methylcellulose are used as viscosity agents, the methylcellulose being added in solution. Methylcellulose is used as an emulsifying and suspending agent in cosmetics, pharmaceutics and the chemical industry. It is used therapeutically as a bulk laxative.

Methyl cellulose is commonly used in face wash formulations as a viscous agent. its provide viscosity and texture.

Xanthane Gum

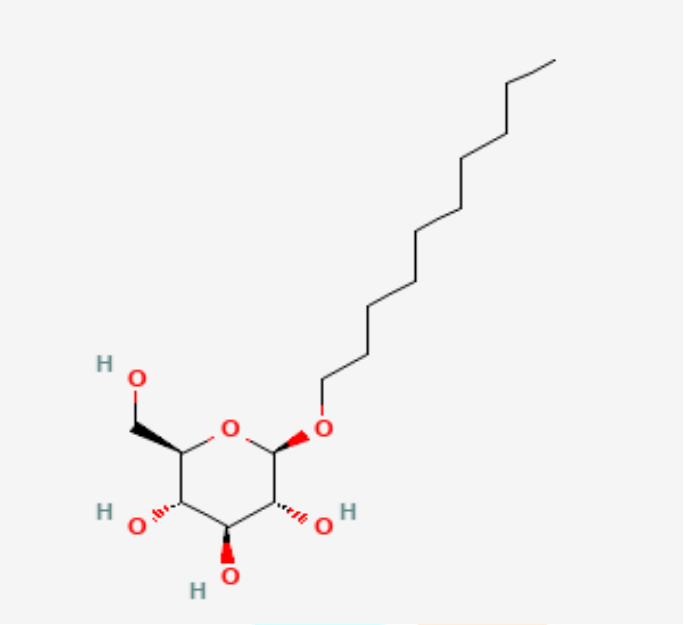


- **Molecular Formula**– C35H49O29
- **Molecular Weight –** 2.0 X 10^6 to 5.0 X 10^7Da
- **Melting Point –** 64.43° degree celsius
- **Colour –**White or Light Yellow
- **Taste –** Neutral Taste
- **Odour –** Very Faint odour
- **Nature–**Xanthane gum is thickening agent and stabilizing agent derived from fermented sugar molecules.

Description:-

Xanthane gum is important exopolysaccharide which produced by xanthomon.
Xanthane gum provides texture, viscosity, release appearance and water-control propreties.
Compestris in controlled conditions. Xanthane gum provides texture, viscosity, release appearance
And water controlled properties as required by food products.
It also used as Thickner, binder, emulsifier, rheology modifier, solubility etc.

Decyl glucoside.



- **Molecular Formula**– C16H32O6
- **Molecular Weight** –320.42 g/mol
- **Melting Point** –31-35° degree celsius
- **Colour** – pale yellow to Light Yellow
- **Taste** – mild sweet and fatty aromatic
- **Odour** – slightly detergent like odour
- **Nature** – it is non ionic surfactant derived from natural sources like corn and coconut.

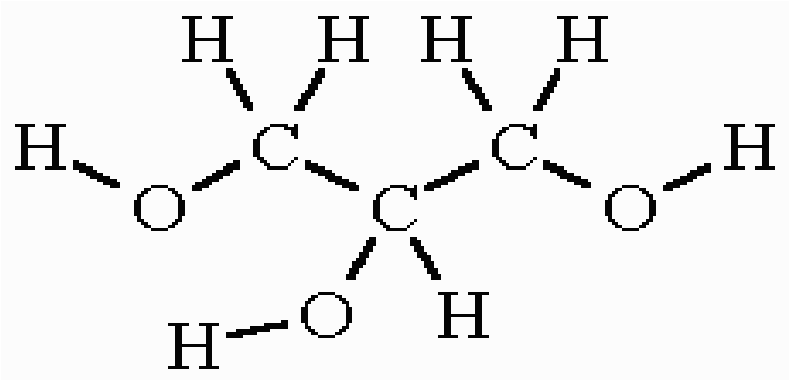
Description :-

Decyl glucoside is synthesized from glucose (derived from corn starch) It's non ionic surfactant meaning it doesn't any charge, making it gentle on skin and hair.

It is used in Personal Care Products Like shampoos, Body Washes, Cleansers. Known for its gentle cleansing & Foaming property.

It is type of alkyl polyglucoside a surfactant created by reacting a fatty alcoholic decanol from coconut oil with glucose.

Glycerine.



- **Molecular Formula**– C3H8O3
- **Molecular Weight –** 92.09 g/mol
- **Melting Point –** 17.8° degreecelsius
- **Colour –** Colourless
- **Taste –** mild sweet taste
- **Odour –** odourless
- **Nature –** Type of carbohydrate known as sugar alcohol or polyol neither acidic nor Basic Classified as Neutral Substance

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Description :

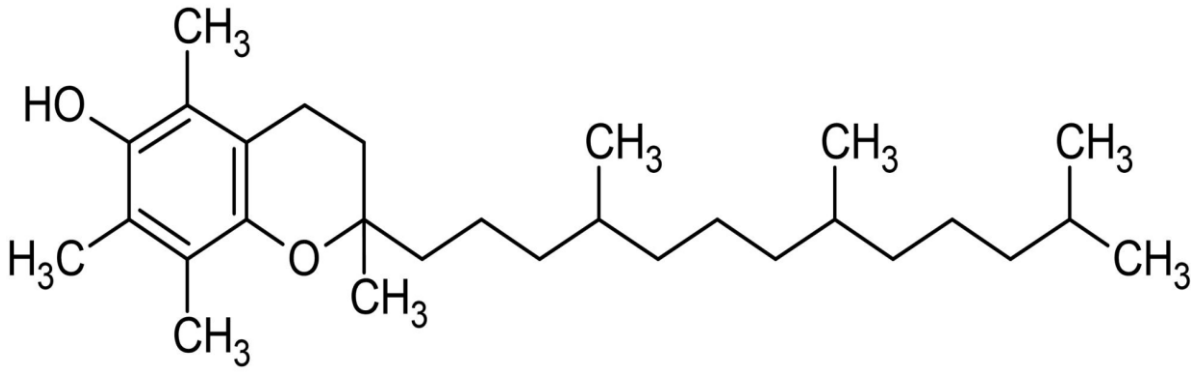
Glycerine also known as glycerol ,it is clear colourless, odourless and syrupy liquid with a sweet taste, acting as a humectant and commonly used in skincare and pharmaceutical and food.

Skincare :-popular humectants attracts moisture to the skin helping to hydrate and soften it .

Pharmaceutical :- it is used as solvent, preservative, and vehicle for medications.

Applications :- it is used in manufacturing of various products like soaps, cosmetics Medicines etc.

Vitamin E.



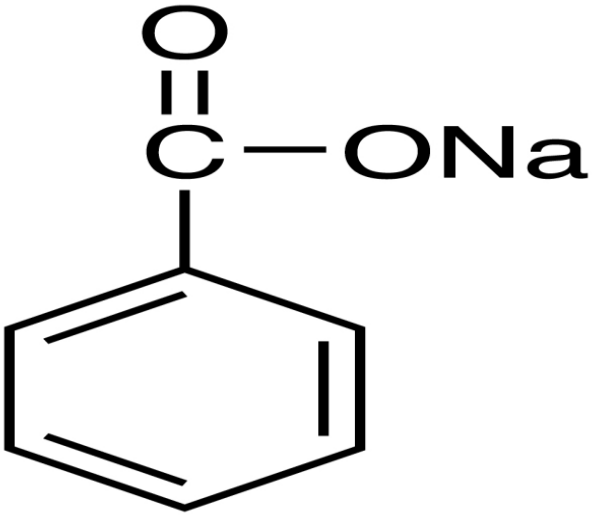
- **Molecular Formula** - C29H50O2
- **Molecular Weight –** 430.71 g/mol
- **Melting Point –** 2.5° To 3.5° degreecelsius
- **Colour –**Yellow To Greenish Yellow
- **Taste –**Tasteless
- **Odour –**Faint Almond Like Odour
- **Nature –** Fat Soluble Antioxident that stops the production of ROS Formed when fat undergoes Oxidation.

Description :

Vitamin E also known as Tocoperol is fat soluble antioxidant found in every cell of the body. Vitamin E is used for maintaining the health of your body cells, brain , eyes and skin.

It is beneficial for skin health acting as powerful antioxidant that can moisturize, protect, against damage and potentially improve skin conditions like dryness and scars.

Sodium Benzoate



- **Molecular Formula** :- C7H5N4O2
- **Molecular Weight** :- 144.10g/mol
- **Melting point** :-410 Degreecelsius
- **Colour:**-White
- **Taste** :-Bitter, sweet, sour or salty
- **Odour** :- Odourless
- **Nature** :-Sodium Benzoate is a preservative of sodium salt of benzoic acid and is produced Synthetically although benzoic acid itself occur naturally in some plants and bacteria.

Description :

Sodium Benzoate is a preservative used in food products and cosmetics. In cosmetics it is used To prevent Bacterial and Fungal growth extending product shelf life and ensuring safety.

MATERIALS

1. Methyl cellulose
2. Decyl Glucoside
3. Glycerin
4. Xanthane Gum
5. Sodium benzoate
6. Vitamin E
7. Water
8. Beutea Monosperma (Palash) Extract
9. Rice Water

Fig no.3 Excipients

METHOD

1) Preparation powder From Beutea Monosperma (palash)

- Collection of Dried Flowers of Beutea Monosperma (Palash).
- Cleanthe Flowers by using distilled water. Flowers are dried in sunlight for one day.
- The dried flowers are collected and grind in a mixer to make a fine powder.

2) Preparation of 2gm Xanthane gum solution:

- Take 5 ml glycerine in a beaker and 2 gm of xanthane gum powder and mix in 5 ml glycerine.
- Stir continuously until all powder was mix properly.

3) Preparation of 0.5gm Methyl Cellulose solution:

- Take 3mlglycerine in a beaker and then Take 0.5 gm of Methyl cellulose powder and mix in 3 ml glycerine.
- Stir continuously to form a jelly-like appearance.

4) Beutea monosprma (palash) extraction prepration /Procedure by (soxhlet Extraction Process)

- Extraction was done by using the soxhlet apparatus.
- 50 gm of Beutea monosperma powder which placed in extractor .
- Then pour 250 ml of ethanol in soxhlet apparatus.
- Then start heating mantle and adjust its temperature and boiling point of ethanol i.e.

80 degreecelcius for 5 hours.

- After 5 hours stop heating mantle and palash extract in round bottom flask.
- Store the extract in suitable air tight container.

Fig.no.4 Extraction of from palash flower

Fig. No.5 Prepared palash extract

5) Preparation of Rice water

- 50gm of Rice and rinse it thouroughly under cold water to remove impurities.
- Take the rinsed rice in beaker in 100ml water soaked for 5 hours.
- Strain the rice water into clean jar separate the water from rice grain.

Fig.No.6 Soaked Rice

Fig.No.7 Rice water

❖ FORMULATION OF HERBAL FACEWASH

Ingredients	**Quantity**	**Category**
Palash Extract	0.5 gm	Anti- inflammatory And Moisturizing
Rice Water	5 ml	Hydration And Soothing
Xanthane Gum	2 gm	Emulsifier and thickening agent
Decyl Glucoside	20 ml	Non-ionic Surfactant
Vitamin E	1 ml	Antioxidant
Sodium Benzoate	0.5 gm	Preservative
Glycerine	8ml	Humectant, Moisturizing
Distilled Water	Quantity Sufficient	Solvent

Table no.1 Formulation Ingredient / Material

- **PROCEDURE :-**

1. Firstly take clean containe / beaker.
2. Then pour 50ml distilled water and add 5ml rice water in it.
3. Then take 5ml of glycerine and 2gm of xanthane gum mixed well and keep a side.
4. Then take 3ml of glycerine and add 0.5 gm methyl cellulose in it and keep a side.
5. Then add 20ml decyl glucoside in beaker.
6. Mix slowly or gently.
7. Then add 0.5gm Beutea monosperma (palash extract) .
8. Measure the pH of face wash with the help of litmus paper. adjust pH in between 4.5 to5.5 with help of adding citric acid.

9. Add methyl cellulose and xanthane gum solution in beaker and mix it well.
10. Then add sodium benzoate (preservative) 0.5gm in solution and mix it well.
11. Transfer it in suitable airtight container.

RESULTS AND DISCUSSION

❖ EVALUATION PARAMETERS OF FACE WASH

1. Physical Evaluation

In this test colour, odour ,texture and state of formulation were checked. The colour was orange-yellow observed.

Fig.no.8 Physical Evaluation of formulation

2. Appearance

Appearance of the face wash was judged by its colour ,consistency and texture. viscous gel like consistency was appear.

Fig.no.9 Evaluating appearance

3. Irritancy

Applied the formulation on left hand surface. Then Face Wash was applied to area and time was noted. Then it is checked for irritancy if any for an interval up to 30 to 50 min.

Fig.no.10 Irritancy Tasting

4. Determination Of pH

Determine PH of herbal facewash by using litmus paper.The pH of the face wash is 5.5. observed.

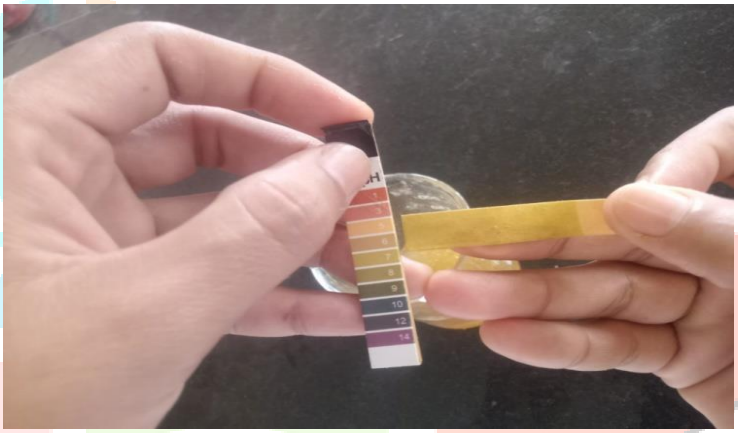


Fig.no.11 PH Test

5. Consistency

The Consistency of prepared formulation is tested by touch and appearance.
Viscous gel like consistency appeare in formulation.

Fig .no.12 Facewash Consistency

6. Washability

A washability test was carried out by applying a small amount of face wash to the hand and then washing it with tap water. The formulation easly rinse off observed.


Fig.no.13 application of facewash for washability testing

7. Foaming Property

Take Petri plate add water into it and face wash according to quantity and shake well and check the Foam.

Fig.no.15 foamability test

The intention of study was to create a cosmetic product which help in relief sensitive skin and wash the face gently without striping moisture of skin and that would be both safe and effective. To improve stability and efficacy used humectants, gelling agent, foaming agent and preservative are include throughout the formulation process.

In order to ensure the suitability for used, a number of criteria include PH, appearance, Washability, Foamingability and consistency were evaluated.

Sr.No.	Test	Result
1	Colour	Yellowish orange
2	PH	5.5
3	Foamability	Create foam
4	Spredability	Easy to spread
5	Washability	Easily washable
6	Consistancy	Semi-solid / gel
7	Irritancy	Non irritant
8	odour	pungent

Table.2. Result and evaluation

SUMMARY AND CONCLUSION

The herbal face wash for sensitive skin, formulation developed in this study demonstrate a gentle and effective cleansing action suitable for delicate and reactive skin types. The inclusion of natural ingredients such as palash & rice water extract contributed to formulation's soothing ,anti-inflammatory, and and antioxidant properties. The pH of the product was maintained within the skin friendly range (5.5) ensuring minimal irritation. Stability tests confirmed the product's physical integrity over time patch testing showed no adverse reactions ,indicating good skin compatibility. Overall, the herbal face wash is a safe, natural alternative to conventional products, making it ideal for individuals with sensitive skin .

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