

Formulation of After Shave Lotion using Marigold floral waste**Rajashree Y. Saoji¹, Amar Zalte², Vishal Guleccha³**¹Research Scholar, Department of Cosmetic Science, Sandip University, Nasik,²HOD, Department of pharmaceutical Science, Sandip University, Nasik,³Dean, Department of pharmaceutical Science, Sandip University, Nasik**Received: 03-08-2021 / Revised: 04-09-2021 / Accepted: 24-09-2021****Corresponding author: Mrs. Rajashree Y. Saoji****Conflict of interest: Nil****Abstract**

In India, every year 8 tons of floral waste is disposed to rivers and water bodies, polluting them to huge amount. If this floral waste is used technically, the amount of waste can be reduced to a huge content. These flowers can be widely used in preparation of cosmetics products. This study identifies the use of marigold waste to prepare after shave lotion. In Nasik Maharashtra ample amount of marigold is available during festivals. In navratri marigold flowers are used to offer deities which is wasted afterwards and thrown in rivers. A small attempt is made here to reduce this waste and convert it into useful, aesthetic and leisure cosmetic product. The marigold extract was prepared and used in after shave lotion because of its useful properties and the product is tested on human volunteers and also according to Indian standards.

Keywords: Floral Waste, Rivers, Water Bodies, Polluting.

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Introduction

The purpose of an after shaving lotion is to relieve the slight irritation or afterglow and confer a pleasant feeling or comfort and well-being after shaving. This is achieved by giving a slight coolness, anesthesia, mild astringency or emolliency to the skin. At the same time preparation is antiseptic so that it will keep the skin free from bacterial infection.

Marigold used in the product heals the skin and acts as a tonner for skin after shaving. It has an anti-inflammatory property, and it is useful for the slight cuts and wounds due to shaving. Marigold was used in the product as it was available in ample amount in Nasik during navratri and so wasted in huge quantity in the same period. These waste marigold flowers were

collected daily during navratri festival from different temples of Nasik. Daily near about one ton of flowers were collected, and they were segregated and processed further for use in after shave lotion.

The marigold here belongs to family Asteraceae. Calendula is a species of annual and perennial herbaceous plants. The scientific name is calendula officinalis.

The petals, pollen, and stems are rich in triterpenoid esters (an anti-inflammatory), antioxidants, and carotenoids, giving the flower a wide array of functions. As of today, marigold products are used as a bactericide, antiseptic, antiviral, and anti-

inflammatory to treat various skin disorders and pain.

In cosmetics, it's mainly used in the form of an oil extract as a skin conditioning agent, anti-inflammatory, wound healing agent, and fragrance additive. The flavonoids and saponins contained in extracts of the plant have been shown to not only promote skin healing and repair but also significantly reduce inflammations. It also possesses strong vulnerary properties (inhibiting tissue degeneration and stopping the bleeding in wounds), making it an excellent treatment for bruises, sores, ulcers, wounds, rashes, eczema, etc.

Preparation of active constituent and its analysis for after shave lotion-

Preparation of marigold extract

The floral waste of marigold petals was taken 20gms and dissolved in 140ml water. Heat it gradually till 75 degree C for 15 minutes. Now cool the extract and filter it. The extract is ready for further cosmetic incorporation.

The extract obtained was further subjected to the microbial testing and found compatible with control standards. The 4 formulations were prepared.

Table 1: Ingredients in four formulations.

S. No.	Ingredients	Formulation E (%)	Formulation F (%)	Formulation G (%)	Formulation H (%)
1	Ethyl alcohol	55	55	55	55
2	Propylene glycol	03	03	03	03
3	Marigold extract	10	15	20	25
4	Water	Upto 100	Upto 100	Upto 100	Upto 100

Method of preparation

All the above ingredients were accurately measured and taken in a beaker stirred uniformly and the after-shave lotion is ready to use.

Application

To be used after shave, quantity used can vary from person to person.

- 1) All the four products prepared were further investigated for physical parameters like color, consistency, odour, appearance, etc
- 2) The single best product was chosen.
- 3) The product was then filled in well labelled containers.

- 4) This product was then given for consumer application.
- 5) 8 customers were selected.
- 6) Survey was done personally in the form of questionnaire.
- 7) After product application reviews were considered.
- 8) Necessary modifications were made.
- 9) And then finally all products were subjected for chemical analysis.

The formulation selected was H as it showed appealing color and remaining formulations like E and F was not having satisfactory color. Formulation G showed slight color change.

Table 2: Ingredients in formulation H.

S. No.	Ingredients	Formulation H (%)
1	Ethyl alcohol	55
2	Propylene glycol	03
3	Marigold extract	25
4	water	Upto 100

Customer reviews for after shave lotion

- 1) Refreshing feeling.
- 2) Soothing effect.
- 3) Perfect color i.e. appealing.
- 4) Need the addition of perfume for aesthetic effect.

Indian standards

Evaluation of after shave lotion-

1) Determination of alcohol content-

Reagents

- Sodium chloride
- Hexane
- Sodium hydroxide 1 N
- Phenolphthalein (solid)

Procedure

Take 25 ml of sample, accurately measured at 25 degree C in a separator. Add 100ml of water and mix saturate this mixture with sodium chloride, then add

Calculation

$$RD = \frac{p \text{ substance}}{P \text{ reference}}$$

RD = relative density

P substance = density of substance being measured

P reference = density of reference

$$RD = \frac{0.69}{0.99}$$

$$= 0.69$$

$$\% \text{ of ethyl alcohol} = \frac{\% \text{ of solute (ml)}}{\% \text{ of solution (ml)}} \times 100$$

$$= 0.48 \times 100$$

$$= 48$$

Result

The alcohol content in after shave lotion was found to be 48.

Conclusion

The marigold after shave lotion formulated using marigold extract showed good and satisfactory customer reviews and compatible Indian Standards. Hence it fulfilled all the required qualities of after

100 ml of hexane and shake the mixture vigorously for two to three minutes. Run the lower layer into distillation flask, wash the hexane in the separator by washing vigorously with about 25 ml of sodium chloride to stand and run the wash liquor into first saline solution. Make the mixed solution just alkaline with sodium hydroxide with solid phenolphthalein as indicator. Add a little pumice stone and 100ml of water. Distil and collect not less than 90ml of distillate into 100 ml volumetric flask. Adjust the temperature at 25 degree C and dilute with water to 100ml at the same temperature. Determine the specific gravity at 25-degree C. Find the percentage v/v of ethyl alcohol corresponding to the specific gravity by reference to ethyl alcohol table.

shave lotion. Lastly the ultimate aim of project that is to reduce down floral waste and utilize it into useful cosmetic product formulation is achieved.

References

1. Bureau of Indian standards
2. K.J. Betsy et al.; Determination of alkali content and total fatty matter n cleansing agents; Asian Journal of Science and Applied Technology;2013,2(1):8-12

3. P.P. Sharma, Cosmetics formulation manufacturing and quality control, vandana publications, 4th edition,111-131.
4. Wilkinson, J.B.Moorre; Harrys cosmeticology; chemical publishing company; 8th Edition; volume I-II, page no. 180-185
6. E.G. Thomson; Modern Cosmetics
7. M.S. Waghmare, A.B. Gunjal, N.N.Nawani, N.N.Patil,; Management of floral waste by conversion to value added products and their other applications; Springer Science:2016
8. Nisha Jain; Waste management of temple floral offerings by vermicomposting and its effect on soil and plant growth; IJOEAR; 2016, 2(7)
10. Isha Yadav, Shelja Juneja, Sunita Chauhan; Temple Waste Utilisation and Management: A Review; IJESTER; Volume-2; Special issue; September 2015.
11. Tsanaktsidis C.G.; Preliminary results on attribute on distillation products of the Rosa damascene as a dynamic and friendly to the environment rural crop; Science Direct; ICESD 2012; January 2012.