

# Formulation and Evaluation of Herbal Face Wash by using Fennel

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**Abstract**— The objective of the work is to formulate and evaluate a cosmetic face Wash by using natural ingredient. (*Foeniculumvulgare*). Since the ancient times, has been awareness among people regarding the use of plants for essential need of a healthy and beautify skin. Cosmetic are the products use to clean, beautify and promote attractive appearance. Cosmetic designed via incorporating natural sources such as herbal have been proven very fulfilling, in coping up with the present need of different skin types. Skin Cleansing herbs is the practice of using substances, mixture or physical treatments to Clean skin. The present research work deals with formulation and evaluation of herbal face wash against this etiologic agent of glowing skin. The present formulation of fennel(*Foeniculumvulgare*). Carbapol 940, glycerine, sodium Benzoate, sodium Metabisulfite, sodium lauryl sulphate, sodium phosphate the herbal face wash is based on Gel type formulation. herbs are able to modulate the metabolism of pigmentation for colour of human skin and play crucial protective role in skin Cleansiness, whereas antioxidants active in the oxidative stress of skin aging cells many support skin health. face wash formulated showed a good Rheological characteristics, pH, spread ability, active Drug content, Foam ability, Viscosity.

**Index Terms** - Fennel (*Foeniculumvulgare*), face wash, Skin, Cosmetic use.

## INTRODUCTION

A Face Wash is a preparation used for the application to the skin. Face wash are also known as a “cleanser”. Applied to the mucous membrane. Face wash product found to be equally good for all skin type. Natural beauty blessings and cosmetic help in presenting and enhancing the beauty and personality aspects of human beings .Now a days, people are preferring natural curing practices for healthy life. [1] Face wash is very helpful in removing Dirt, Oil Pollution etc. cleanser dissolves away excess oil, sebum, dead skin cells as well as germs for our pores, Makeup and grime from your face this are oil soluble impurities. So that skin look young and energetic. The purpose of face

wash me be too in part cleansing, anti-acne property, moisturizing effect and fairness of skin. Fennel seeds serve your skin by providing various vitamins, which in turn give you a younger looking skin.

Fennel plant (*Foeniculumvulgare*) having feathery leaves and umbel of small, yellow flowers. Originated in the southern Mediterranean region. Romans grew it for its aromatic seeds. Edible fleshy shoots are still a very common vegetable in southern Italy. Grown wild throughout the Northern, Eastern, and western hemispheres, specifically in Asia, North America and Europe. Fennel plants approximately production in India 110,000.

## 1.Properties of face Wash

- The exfoliation accelerates the blood circulation and promotes skin regeneration and rejuvenation.
- Facial pores and oily skin in caused by over secretion of sebum by sebaceous glands which clogs the makes the skin oilier.
- Oily skin requires cleansers which herbs and botanicals which will clean the pores and reduce oil build-up. These exfoliating cleansers contain that improve and nourish the damaged skin.
- Known for its beneficial properties, herbal face wash is used to treat acne and pimples. Containing rich plant-based ingredients like Fennel, herbal face wash removes excess oil without removing nutrients from the skin.

## 2. Ideal Properties of face wash

- It should be stable and should have a good appearance.
- It should soften on application to the skin.
- It should spread easily without dragging.
- During application it should not have oily or greasy feel.
- After evaporation of water the cream residue should not become viscous.[2]

## 3.Forms of face wash

- Cream based face wash
- Gel based face wash
- Liquid face wash
- Face wash in powder form

4.Types of face wash

- Oily skin face wash
- Dry skin face wash
- Normal skin face wash<sup>[3]</sup>

5.Uses of Face wash

- To remove all traces of makeup every day
- For cleansing the skin
- Anti-aging
- Bath and renewal keeping the skin clean and shiny
- Stimulates there generation of the skin cells and their renewal
- Help plug the pores clear

Formulation table –

Phase	Contents	Formulation				
		F1	F2	F3	F4	F5
A.	Distilled Water	Up to 100	Up to 100	Up to 100	Up to 100	Up to 100
	Carbapol-940	10 ml	10 ml	10 ml	10 ml	10 ml
	Glycerine	6 ml	6 ml	6 ml	10 ml	10 ml
B.	Sodium Benzoate	0.10 ml	0.13 ml	0.15 ml	0.18 ml	0.20 ml
	Funnel	10 ml	15 ml	20 ml	25 ml	18 ml
C.	Sodium Metabisulfite	0.2 gm.	0.2 gm.	0.2 gm.	0.2 gm.	0.2 gm.
	SLS	20 gm.	25 gm.	20 gm.	25 gm.	20 gm.
	Perfume	q.s.	q.s.	q.s.	q.s.	q.s.
D.	Sodium Phosphate	7 gm.	7 gm.	7 gm.	7 gm.	7 gm.

Table No. 1 – Formula For Herbal Face Wash



Fig. no. 1(Fennel Face Wash)

METHOD

- Take phase A material containing Carbapol-950 with water. And glycerine and mixed them until clear solution form.
- Then phase B material containing sodium benzoate and fennel was add and mixed into phase A. allow to mix into the product up to 20 min.
- Add phase C material containing sodium metabisulfite solution and sodium lauryl sulphate this solution heated at 75°C. And then add phase A and B mixed batch up to 20 min. add a perfume as a fragrance.
- Add phase D material containing sodium phosphate into phase A, B and C slowly and allow to mixed batch for 30 min.
- Then add phase D material into phase A, B, and C and transfer into suitable container.

Evaluation of Face wash

A) Rheological Characteristics

Rheological characteristics were studied for Colour, Viscosity, Clogging.

B) Determination of pH

The pH of formulations was determined using digital pH meter (Model EQ-610). One gram of face wash was dissolved in 100 ml of demineralised water and stored for 2 hours. The measurement of pH of each formulation was done in triplicate. Instrument was calibrated before use with standard buffer solution at pH 4, 7 and 9.

C) Determination of Viscosity

100 g of each formulation was weighted and transfer to beaker. Use Brookfield viscometer (LV DV III Ultra), spindle No. 3 at 10 rpm for 5 min. Before measurement declaration of face wash was done and the face wash was filled in appropriate viscosity of formulations were determined with the wide mouth container. Samples of the face wash were allowed to settle over 30 min at the assay temperature (25± 1°C) before the measurements. Viscosity of formulation was determined using the formula.

$$\text{Viscosity (cp)} = \text{Dial Reading} \times \text{Factor}$$

D) Foam ability

Small amount of face wash was taken in a beaker was taken in beaker containing water. Initial volume was

noted, beaker was shaken for 15 times and the final volume was noted. Foamability was also analysed by applying on skin with water.

E) Active Drug Content:

The small amount of drug content was determined by taking 10 gram. of containing which is equivalent to 10 mg. was added in 50 ml volumetric flask containing ethanol and mixed it well with shaking or inverting the volumetric flask for two to three 0.1 ml. of this solution was diluted with 25 ml fresh ethanol and active content was determined using UV spectrophotometer at 259 nm.

F) Spread ability

Spread ability indicate the limit of the area in which the face wash spreads easily on the skin or the affected part. The biological availability of the fuctionality to create a face wash also depends on the value of extension. By slides spreadability two seconds, put the seconds slide to slide, it shows below a certain weight. Reduce the time needed to separate the two slides, a good spreadability. Two standard sizes of standard glass were taken. Herbal face wash was designed in one of the slides. The other was placed on top of the slide face wash, like a face wash sandwich between the two slides on the 6-centimeter slide on the slide. The weight of of100 gm was placed in the upper slide so that the face wash between the two slides were pressed evenly with a thin layer. The weight was eliminated much more than the prisons that adhere to the slides. In the position, two slides are placed without interruption, thus remaining in such a way that, in this way, the weight of the body built in the upper slide is like a free dream. A weight of 20 gm was built in the upper slide. The time needed for the previous slide is to go to a distance of 6 cm 7, separated from the next slide by the weight of the weight. This test was performed three times in the average time taken to face wash and commercialize face wash and calculate three times.

Spreadability was calculated by using the following formula,

$$S=M \times L/T$$

Where,

S- Spreadability

M- Weight tied to the upper slide (20 gm).

L- Length of the glass (6.5 gm)

F) Greasiness

The product was checked for the presence of any gritty partials by applying it on the skin.

G) Stability study:

The Cleansing face wash were also subjected to the following condition of temperature and relative humidity during stability studies for 2 month at room temperature.

H) Anti-Microbial Activity

➤ Sterilization Process:

All Glass wares required for Anti-Microbial test. Glass wares are sterile in autoclave at 120 °C (250 °F) for 15 min.

➤ Nutrient Agar preparation:

Nutrient Agar is general purpose medium supporting growth of a wide range of non- fastidious organisms. It typically contains (mass/volume).

- 0.5% peptone – this provides organic nitrogen.
- 0.3% beef extract – the water soluble content of these contributes vitamins, carbohydrates, nitrogen, and salts.
- 1.5% agar – this gives the mixture solidity.
- Distilled water – water serves as a transport medium for agars various substances
- pH adjusted to neutral (6.8) at 25°C (77°F).

These ingredients are combined and boiled for approximately one min. follow the sterilization process. The they cooled to around 50 °C (120 °F) and poured into Petri dishes which are covered immediately. Once the dishes hold solidified agar stored upside down and are often incubator until used, inoculation take place on warm dishes rather than cool ones: if incubator for storage, the dishes must be rewarmed to room temperature prior to inoculation.

RESULT AND DISCUSSION

Sr.No.	Evaluation Parameter	Observed Value
1.	Organoleptic Properties	-
2.	Colour	Transparent
2.1	Odour	Pleasant
2.2	Viscosity	15203
2.3	Foam ability	Excellent
3.	Test of Spreadability	-
4.	pH Measurement	6.3
5.	Greasiness	No Greasy
6.	Clogging	No Clogging

Table No.2 - Result and Discussion

## CONCLUSION

This study aimed at developing herbal face wash by using seed extracts of *foeniculumvulgare*, in carbopol system. Desired formulation of the face wash was prepared and evaluated like colour, pH, spreadability, viscosity, foam ability, and anti-microbial activity, accelerated stabilities studies, active drug constant. The formulation of face wash F2, F3, F4 showed good all activity and better stability study in F4 Formulation. thus could be an effective formulation made from fennel and has cosmetic benefits like anti-inflammatory, anti-oxidants and are more acceptable in the belief that they are safer with fewer side effects than synthetic ones, So herbal face wash which is non-toxic, safe, and effective was formulated.

## REFERENCES

- [1] Chatur VM, Walode SG, Awate SA, Gandhi MU, Thorat VS. Formulation and physical characterization of herbal face gel toner. *World Journal of Advanced Research and Reviews*. 2021;11(1):138-45.
- [2] Sasidharan S, Joseph P. Junise. Formulation and evaluation of fairness serum using polyherbal extracts. *Int J Pharm*. 2014;4(3):105-2.
- [3] Ojha S, Chadha H, Aggarwal B. Formulation and Evaluation Of Face Serum Containing Bee. *World J Pharm Res*. 2019 Feb;8:1100-5.
- [4] Dipanwita Chowdhury, Priyanka Ray\*, Abhijit Sengupta Formulation and evaluation of herbal face mist Vol. 7 (1): 14-21, Jan-Mar, 2020.
- [5] Thanapron Amnuait, Suphatsa Khakhong, Pasarat Khongkow. Formulation Development & Skin Evaluation of Face Serum containing Jellose from Tamarind Seeds. 2019, 2456-9119.
- [6] Budiasih S, Masyitah I, Jiyauddin K, Kaleemullah M, Samer AD, Fadli AM, Yusuf E. Formulation and Characterization of Cosmetic Serum Containing Argan Oil as Moisturizing Agent. *InProceedings of BROMO Conference (BROMO 2018)* 2018 Jul (Vol. 297, p. 304).
- [7] Bellini E, De Piccoli A, Makarim R, Polese S, Riva L, Visconti A. New Records of Pre-image Search of Reduced SHA-1 Using SAT Solvers. *InProceedings of the Seventh International Conference on Mathematics and Computing: ICMC 2021* 2022 Mar 6 (pp. 141-151). Singapore: Springer Singapore.
- [8] Thakre AD. Formulation and development of de pigment serum incorporating fruits extract. *Int J Innov Sci Res Technol*. 2017;2(12):330-82.
- [9] Ak M. A comprehensive review of acne vulgaris. *J. Clin. Pharm*. 2019;1(1):17-45.
- [10] Sanz MT, Campos C, Milani M, Foyaca M, Lamy A, Kurdian K, Trullas C. Biorevitalizing effect of a novel facial serum containing apple stem cell extract, pro-collagen lipopeptide, creatine, and urea on skin aging signs. *Journal of cosmetic dermatology*. 2016 Mar;15(1):24-30.
- [11] Mokos ZB, Kralj M, Basta-Juzbašić A, Jukić IL. Seborrheic dermatitis: an update. *Acta Dermatovenerol Croat*. 2012 Jan 1;20(2):98-104.
- [12] Tian-Hua Xu MD, Chen JZ, Hong Li MD, Wu MD, Jia Luo MD, Xing-Hua Gao MD. Split-face study of topical 23.8% L-ascorbic acid serum in treating photo-aged skin. *Journal of Drugs in Dermatology*. 2012 Jan;11(1):51-6.
- [13] W. Philip Werschler MD, Nathan S. Trookman MD, Ronald L. Rizer PhD, et. al., Enhance Efficacy of Facial Hydrating Serum in Subject with Normal or Self-Perceived Dry Skin. 2011, 1385-1394.
- [14] Garre A, Narda M, Valderas-Martinez P, Piquero J, Granger C. Antiaging effects of a novel facial serum containing L-Ascorbic acid, proteoglycans, and proteoglycan-stimulating tripeptide: ex vivo skin explant studies and in vivo clinical studies in women. *Clinical, cosmetic and investigational dermatology*. 2018 May 29:253-63.
- [15] Draelos ZD, Diaz I, Namkoong J, Wu J, Boyd T. Efficacy evaluation of a topical hyaluronic acid serum in facial Photoaging. *Dermatology and Therapy*. 2021 Aug;11(4):1385-94.
- [16] Ranidevidas MG, Bagwan LR. Formulation and Physical Characterizatio of Herbal Face Geltoner.
- [17] Miss Payal Pramod Jagtap, Miss Bhavana Ravindra Desale, Mr. Vishal Ashok Chaudhari, et.al., Formulation and Development of Anti-Acne Serum Using Euphorbia Hirta. 2020, 2(12), 171-179.
- [18] BUDDEEN MB. OPTIMIZATION, STABILITY AND CHARACTERIZATION OF FACE SERUM FORMULATION (Doctoral dissertation, Universiti Teknologi Malaysia).

- [19] Shi VY, Tran K, Lio PA. A comparison of physicochemical properties of a selection of modern moisturizers: hydrophilic index and pH. *Journal of drugs in dermatology: JDD*. 2012 May 1;11(5):633-6.
- [20] Mohammed AA, Al-Habib OA. Bronchodilator Effect of *Crataegus azarolus* var *aronia* Unripped Fruit Extracts on Rat's Tracheal Smooth Muscle. *Indian Journal of Forensic Medicine & Toxicology*. 2021 Aug 16;15(4):826-34.
- [21] Jagtap MP, Chaudhari MV, Davar MR, Patil MN, Joshi MP, Desale MB. FORMULATION AND DEVELOPMENT OF ANTI-ACNE SERUM USING *EUPHORBIA HIRTA*. *International Journal Of All Research Writings*. 2020 Jun 1;2(12):171-9.
- [22] Timudom T, Chaiyasut C, Sivamaruthi BS, Tiampasook P, Nacapunchai D. Anti-sebum efficacy of *phyllanthus emblica* l.(emblica) toner on facial skin. *Applied Sciences*. 2020 Nov 19;10(22):8193.
- [23] <http://www.skinbiology.com> Leveque and Agache "Ageing skin, properties and functional changes"
- [24] [https://en.m.wikipedia.org/wiki/olive\\_oil](https://en.m.wikipedia.org/wiki/olive_oil).