

Review on Formulation and Evaluation of Polyherbal Anti-Acne Face Wash

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ABSTRACT: Acne vulgaris is the most common chronic inflammation disorder that occur when oil cells blocked.the hair follicles from ancient we believe that the herbal medicine are more safer and has low side effects as compare to synthetic medicine herbal therapeutic industry is the oldest cure method of disease and also seen in Vedas. The present work deals with the development and evaluation of the herbal Anti-acne face wash containing aqueous extract of neem leaves (*Azadirachta Indica*), turmeric (*Curcuma Longa*), Liquorice root, shahijeera, orange peel and hydroalcoholic extract of fruit of nutmeg (*Myristica Fragrance*). Although various topical herbal formulations for acne are available in the market, we propose to make pure herbal formulations without using any synthetic ingredient. The plants have been reported in literature having good anti-microbial, anti-oxidant, anti-inflammatory activity. Various formulations (F2 to F5) were evaluated for various parameters like colour, appearance, consistency, pH and spreadability Optimized batch of formulation was compared with the marketed preparation. Amongst all the formulation studies batch F2 was found optimum for all the parameter. It was very good attempt to establish the herbal anti acne face wash containing aqueous extract of neem leaves, turmeric rhizomes, and fruit of nutmeg.

KEYWORDS :Neem , Xanthan gum, Herbal ingredients, Anti-acne face wash.

I. INTRODUCTION

Cosmetics: According to Drug and cosmetic act 190 and the in rules, 1945 'cosmetic' is defined as any article intended to be rubbed, poured, sprinkled or spread on, or introduced into or otherwise applied to the human body or any part thereof for clenasing, beautifying, promoting, attractiveness, or altering the appearance, and includes any article intended for use as a component of cosmetic.

-Cosmetics are constituted of mixture of chemical compounds obtained from either natural source or synthetically created ones.

Herbal Cosmetics: Herbal cosmetics is defined as the beauty product, which possess desirable, physiological activities, such as skin healing, smoothening, appearance, enhancing and conditioning properties with the help of herbal ingredient. The cosmetics which are prepared using plant products have cosmetic actions. Recently the increased use of herbal in cosmetics is mainly due to their mild and non-toxic nature. Phytoingredients and natural supplements are used in cosmetics. Natural products include oils, extracts, secretion, etc. phytoingredients include pure constituents obtained by various process.

Advantages:

- They do have provoke allergic reaction and do not have negative side effects.
- They are easily incorporated with skin and hair.
- With small quantity they are very effective as compare to synthetic cosmetics.
- Easily available found in large variety and quantity.
- They have more stability, purity, efficacy with their herbal constituents.

Anti-Acne Facewash:

-Acne is an infection of the skin, caused by changes in the sebaceous glands. The most common form of acne is called acne vulgaris. Acne vulgaris is extremely common disorder of skin. The redness comes from the inflammation of the skin in response to the infection.

-Oils from the glands combine with dead skin cells to block hair follicles under the blocked pore, oil builds up skin bacteria can then grow very quickly. This infection makes the skin become swollen and red, which becomes visible. The face, chest, back and upper arms are most common places for acne to happen.

- Acne may be classified as Comedonal, Papular, pustular, Cystic and Nodular.
- The word acne is derived from the Greek word acme which means prime of life. Generally acne is considered to be a benign, self limiting conditions , that causes severe psychological problem that can prolong over a life time.
- It is a polymorphic disorder and can manifest at any time during life but it most commonly present between ages of 12-24 which an estimated 85% of the population affected.

Various types of acne:

1)Acne Rosacea:

- A condition that causes redness and often small, red, pus filled bumps on the face.
- Rosacea most commonly affect mid aged women.
- It can be mistaken for acne or other skin conditions. In this condition blood vessels of the face enlarge indicating the flushed appearance.
- Rosacea is a chronic incurable, adult acne like skin condition that is easily controllable and curable medically.
- The Symptoms may come and go and skin may be clear for weeks, months or years and then may emerge time and again.
- Rosacea inclined to develop in certain stages and causes to create inflammation of the skin of the face especially the foreheads, cheeks, nose as well as chin.
- Sign and Symptoms of Rosacea are redness of the face , tiny red pimples and fine red lines on the facial skin. And enlarge, bulbous red nose, eye problems like swollen, red eyelids and conjunctivitis.

2)Acne Vulgaris:

- It's is the most common form of acne. Acne vulgaris a general condition that is characterized by the development of seborrhoea, comedones, nodules, pustules, papules and cysts.
- It occurs in the areas of the skin with plentiful growth such as in the upper chest, back, legs and face,sebaceous gland get infected and clogged. usually affects people from puberty to young adulthood.

Acne Symptoms:

- Acne can be found anywhere on your body. It commonly develops on the face, neck, chest, shoulder and back in appearance.
- It you have acne it can be seen as white and red bumps or pimples with red skin. Both blackheads and whiteheads are known as come downs. Blackheads are generally seen on the surface of the

skin giving them a black appearance although whiteheads are seen just under the surface of the skin, giving them a white appearance and blackheads are the most prominent types of acne, other lesions can occur.

-Generally acne can be categorised into six major types:- 1) **Whiteheads (non-inflammatory):**-This type of acne forms when you have closed pores with bacteria or oil or dead skin cells stuck. These are not painful in nature.

2) Blackheads (non-inflammatory)

-It is a non painful acne type appears within open pores which are clogged with impurities like dirt or extra sebum from sebaceous gland.

3) Papules (Inflammatory)

-It develops when the impurities clogged into the pores inflame the hair follicles, it does not have visible pus.

4) Pustules (Inflammatory)

-It is the next stage of papules here the acne develops visible blobs of pus. It can cause pain in the affected area.

5) Nodules (Inflammatory)

-This type of acne is painful with acne lesions deep under the skin it appears as red bumps on your skin and may take few weeks to heal.

6)Cystic Lesions (Inflammatory)

-Cystic acne is the stubborn form of Nodular acne. It is deep rooted under the skin damaging the layers. It is the most painful among all type of acne. This is why it is not be ignored.

Acne Causes:

- Normally, extra oily skin is identified as one of the major factor inducing acne.
- Hormonal fluctuation can be blamed for acne.
- Emotional and mental stress is another significant aspect influencing changes in hormones which further produces acne on skin.
- Impurities clogging your skin pores can give you acne.

PLANT PROFILE:

Neem (Azadirachta Indica)

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliophyta
Order	Sapindales

Family	Meliaceae
Genus	Azadirachta
Species	A.Indica



Turmeric (Curcuma Longa)

Kingdom	Plantae
Division	Magnoliophyta
Class	Liliopsida
Order	Zingiberales
Family	Zingiberaceae
Genus	Curcuma
Species	C. Longa



Nutmeg (Myristica Fragrans)

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Magnoliales
Family	Myristicaceae
Genus	Myristica Gronov
Species	Miristica Fragranse



Liquorice (Glycyrrhiza Glabra)

Kingdom	Plantae
Division	Magnoliopsida
Class	Magnoliopsida
Order	Fabales
Family	Fabaceae
Genus	Glycyrrhiza
Species	G. Glabra



Orange Peel (Citrus Sinensis)

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Sapindales
Family	Rupaceae
Genus	Citrus
Species	Citrus Sinensis

List of ingredients used in the formulation:-

Ingredients	Uses
(1)Neem Leaves (Azadirachta Indica)	Antibacterial, Antiseptic, antifungal,antiinflammatory and highly beneficial for oily and acne prone skin
(2)Turmeric (Curcuma)	Antifungal, antibacterial, and it protect the skin from

Longa)	many skin infections and also add glow to the face.
(3)Nutmeg Seed (Myristica Fragrans)	Antibacterial, anti-inflammatory and bactericidal
(4) Liquorice Root (Glycyrrhiza Glabra)	It gives soothing properties to the skin, highly rejuvenating
(5) Honey	Light humectant and nutrient used as a thickening agent to give body to facial masks, creams and lotions.
(6)Shahi Jeera	As perfume
(7) Lemon Juice	It is quite effective for treating acne and pimple. It lighten the skin and reduce blemish marks on the skin.
(8) Xanthan Gum	It used as a stabilizer and thickening agent.
(9)Orange Peel Extract	It is used as antioxidant and antimicrobial.
(10)Rose Water	Solvent: It also has antibacterial and antiseptic properties which eventually cure acne.
(11) Walnut	Scrubbing action of walnut granules helps breakup the mild oil deposit and clear the dead skin cells and debris.

METHODOLOGY:

1.COLLECTION:

Leaves of neem were collected from the local area. Fruit of nutmeg, orange peel, liquorice root, turmeric root, rosewater, honey, Shahi Jeera, walnut were collected from the local area.

2.PREPARATION OF EXTRACT:

-Leaves of neem, rhizomesof turmeric roots of liquorice, orange peel were kept in hot air oven for the purpose at 45°C temperature and granded into small pieces with the help of grinder.Seeds of nutmeg and Shahi Jeera (cumin) were crushed to make powder.

-Desired quantities of herbal drugs were weighed and each herb macerated with rose water in conical flask.

- Dried herbs were mix with rose water by moderate shaking of conical flask for 3 days separately.

- After 3days, contents were filtered out by using simple filtration method and filtrates were collected in vessels separately.

3. FILTRATION:

-Filtration of extract was done by using simple filter paper and funnel for 2 times.

4.EVAPORATION:

-Evaporation process was done with the help of water bath. Filtrates were allowed to evaporate in evaporating pan at 60° temperature until the desired concentration of the extract was obtained.

5. DEVELOPEMENT OF FORNULATION:

-Different batches were prepared according to table 1. The desired concentration of gelling agent i.e. Xanthium gum was weighed accurately and dispersed in hot rose water (not more than 60°C, 50% weight of the batch size) with moderate stirring, avoiding air entrapment and allowed to soak overnight.

-Desired quantity of lemon juice was dissolved in desired amount of honey by gentle stirring, desired quantity of concentrated herbal extract were added to the remaining amount of rose water and mixed with above honey mixture by gentle stirring, this was finally mixed with previous soaked gel formulation. Prepared formulations were filled in a suitable container and labelled accordingly.

TABLE 2 : COMPOSITION OF DEVELOPED FORMULATION

Sr.No.	Ingredients	Quantity taken for 10 g gel				
		F1	F2	F3	F4	F5
1.	Neem extract	0.5ml	0.5 ml	0.5 ml	0.5 ml	0.5 ml
2.	Turmeric extract	0.2 ml	0.25 ml	0.5 ml	0.2 ml	0.2 ml
3.	Nutmeg extract	0.5 ml	0.25 ml	0.5 ml	0.25 ml	0.25 ml
4.	Orange peel extract	0.1 ml	0.1 ml	0.1 ml	0.1 ml	0.1 ml
5.	Liquorice extract	0.25 ml	0.25 ml	0.25 ml	0.25 ml	0.25 ml
6.	Shahi jeera extract	0.1 ml	0.1 ml	0.1 ml	0.1 ml	0.1 ml
7.	Lemon juice extract	0.1 ml	0.1 ml	0.1 ml	0.1 ml	0.1 ml
8.	Honey	0.5 ml	0.5 ml	0.5 ml	0.5 ml	0.5 ml
9.	Xanthan gum	0.05g	0.1 g	0.15 g	0.02 g	0.01 g
10.	Exfoliating walnut granules	q. s.	q. s.	q. s.	q. s.	q. s.
11.	Rose water	q. s.	q. s.	q. s.	q. s.	q. s.

MARKETED FORMULATION:

-Himalaya purifying neem Face wash was purchased from local market.

EVALUATION TESTS:

-Prepared formulation evaluated for following tests and compared with marketed Himalaya neem face wash.

•PHYSICAL APPEARANCE:

-Visually checked the physical appearance of the formulation.
 -Colour: The colour of the formulation was checked out against a white background.
 -Odour: The odour of the face washes was checked manually.

•CONSISTENCY:

-The consistency was evaluated by applied on the skin.

•PH:

-PH of 1% aqueous solution of the formulation was measured by using a calibrated digital PH meter at constant temperature.

•GREASINESS:

-The greasiness was assessed by directly applying on to the skin.

•WASHABILITY:

-The prepared formulation were applied to the skin and then ease and extent of washing with water were checked manually

•HOMOGENEITY:

-Here allow the formulation to set on a container and homogeneity was tested by visual inspection. They are hence evaluated for their appearance and presence of aggregates.

•SPREADABILITY:

Spreadability denotes the extent of the area to which the formulation readily spreads on the application to the skin. The bioavailability efficiency of the formulation depends on the spreadability value. Spreadability is defined in terms of time in seconds required taken by the upper slide to slip off the product place between the two slides under a certain load. The lesser time is taken for the separation of two slides; the better the spreadability.

Two sets of glass slides of standard dimension were taken. The herbal gel formulation was placed on the top of the gel, such that the gel was sandwich between the two slides in an area occupied by a distance of 6 cm along the slide. 100gm weight was placed upon the upper slide so that the gel between the two slides was pressed uniformly to form a thin layer.

The weight was removed and the excess of the gel adhering to the slides was scrapped off. The two slides in position were fixed to stand

without slightest disturbance and in such a way that only the upper slide to slip off freely by the force of weight tied to it. A 20 gm weight was tied to the upper slide to travel the distance of 6Cm 7 separated away from the lower slide under the influence of the weight was noted. The experiment was repeated three times both formulated gel and marketed gel and the mean time taken for calculation.

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 (6.5Cm)

T- Time in seconds.

II. RESULT AND DISCUSSION:

The result of evaluation are displayed in table 2. Formulation was orange in colour, where as , marketed formulation was green in colour. Formulation F1, F2, F3, and F4 was on semi-solid consistency. All the formulations were found to be homogeneous and easily washable. All the formulations have slightly alkaline pH which was compatible with normal skin physiology.

Evaluation of formulations

Physical appearance :

Formulation/ Batch (code)	Colour	Odour
Marketed Neem face wash	Green	Pleasant
F1	Orange	Pleasant
F2	Orange	Pleasant
F3	Orange	Pleasant
F4	Orange	Pleasant
F5	Orange	Pleasant

PH :

Formulation code	PH
Marketed	5.8
F1	4.9
F2	5.3
F3	5.4
F4	4.9
F5	4.6

Greasiness :

Formulation code	Greasiness
Marketed	No
F1	No
F2	No
F3	No
F4	No
F5	No

Washability :

Formulation code	Washability
Marketed	Good
F1	Good
F2	Good
F3	Good
F4	Good
F5	Good

Homogeneity :

Formulation code	Homogeneity
Marketed	Homogeneous
F1	Homogeneous
F2	Homogeneous
F3	Homogeneous
F4	Homogeneous
F5	Homogeneous

Spreadability :

Formulation code	Spreadability
Marketed	5.909
F1	4.193
F2	5.416
F3	2.6
F4	2.826
F5	4.642

III. CONCLUSION:

This present article come to conclusion that, people need perfect skin care treatment or remedy but without causing any kind of toxic effect to the beautiful face.Natural remedies are more suitable in the assurance that they are safer with

less side effects than the synthetically ones. Now a days herbal formulations are in trending and demand, so our purpose is to develop multiherbal face wash formulation for acne.

The formulation contain the antibacterial, antiacne, anti-aging, antioxidant, and anti-inflammatory property that is used to glow of skin and promote beutiness except treat skin disorder. This review formulation study, this article conclude that our face wash give beneficial effect to the skin. prepared multiherbal formulation is more efficacious, stable and patent as compare to synthetic formulation in the treatment of skin ailments.

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