



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 8, August 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.118

9940 572 462

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Conceptualisation and Appraisal of Poly-herbal Face Wash Gel for Acne Treatment

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ABSTRACT:

[Natural remedies are more acceptable within the belief that they are safer with fewer side effects than synthetic ones.]1 [The herbal drug industry in India is probably the oldest medical care system in the world. The history of herbs in ancient India is so old that the ancient form of herbal healing has even been mentioned in the Vedas, an ancient religious work of the Indians. Herbal formulations have a growing demand in the world market. The ancient herbal healing methods of Ayurveda and Unani deal with the use of herbs and natural products to tackle health conditions.]2 These oldest herbal ingredients are present today also in the form of plant extracts in the prescribed medications. The first objective of this study was conducted with a view to formulate and evaluate the face wash gel for acne. [Acne is a common dermatological disorder that most frequently affects adolescents; however, individuals may be affected at all ages.]3 [Acne vulgaris (AV) affects nearly everyone at some point in life.]4 [The severity of acne formation depends upon sebum production. Acne is the 8th most prevalent disease worldwide and the prevalence of acne is about 9.4%. Globally, the epidemiology of acne was found to be around 85% of adults in the age between 12 and 25 years old, 8% of adults in the age between 25 and 34 years, 3% of adults in the age between 35 and 44 years old, and 42.5% of men and 50.9% of women are getting affected in their twenties.]5 So we've formulated face wash containing herbal medicaments such as aqueous extract of neem leaves (*Azadirachta indica*), curry leaf (*Murraya koenigii*), and Bel Patra (*Aegle marmelos*), turmeric (*Curcuma longa*). In literature, it's reported that these plants are having anti-microbial, anti-oxidant, anti-inflammatory, and anti-diabetic activity. All the six formulations (F1 to F6) under study were found to be stable and showed comparable appearance, pH, spreadability, and viscosity.

KEYWORDS: Face wash, Herbal, Antiacne, Antioxidant, Antibacterial agent.

INTRODUCTION:

[The herbal drug industry in India is probably the oldest medical care system in the world. The history of herbs in ancient India is so old that the ancient form of herbal healing has even been mentioned in the Vedas, an ancient religious work of the Indians. The ancient herbal healing methods of Ayurveda and Unani deal with the use of herbs and natural products to tackle health conditions.]2 These oldest herbal ingredients are present today also in the form of plant extracts in the prescribed medications. Foreign countries are practicing our oldest herbal remedies the Indian herbal drug system is in good demand resulting in its augment thus witnessing its profit up to 30% annually. Worldwide an excellent requirement for herbal cures, herbal skin care products, and even herbal cosmetics were observed in recent years.

[According to World Health Organization (WHO) estimate, nearly 75-80% of the world population still uses herbs and other traditional medicines for their primary health care. India has about 45,000 plant species among which, the medicinal property has been attributed to several thousand.]5

India may be a core center for medicinal plants, about 15% out of the 20,000 medicinal plants on the planet is found growing wild in different climatic conditions.

[For thousands of years using herbs for medicines. Herbs, this definition has been expanded to any of the plants of which part or whole can be used in medicinal treatments. Herbal extracts are an ancient methodology as their references have been discovered in holy Vedas and Unani scriptures. (WHO. 1993) Herbal extracts are primarily added to cosmetic preparations due to several associated properties such as antioxidant properties. The herbal extracts have also been used for topical anti-inflammatory properties. These agents block the inflammatory changes that result during



cutaneous ageing and thus may help reverse the signs of ageing.]6 When herbs are taken, the body starts to urge cleansed, it gets purifying itself. Unlike chemically synthesized, highly concentrated drugs which will produce many side effects, herbs can effectively realign the body's defenses.

[In the human being, the skin is the most susceptible part for the entrance of various pathogens, microorganisms, and the spreading of diseases.]5 Acne vulgaris initiates at the puberty stage due to hormonal changes which in turn modifies pathophysiological factors. [Microorganisms such as Staphylococcus, Propionibacterium, and Escherichia species are responsible for the formation of acne.]5

During the puberty stage, sebum exudes a higher amount from the sebaceous glands due to the increased production of androgens. Sebum may be a lipid-rich secretion that acts as a medium for the growth of acne-causing bacteria. [The severity of acne formation depends upon the sebum production. Acne is the 8th most prevalent disease worldwide and the prevalence of acne is about 9.4%. Globally, the epidemiology of acne was found to be around 85% of adults in the age between 12 and 25 years old, 8% of adults in the age between 25 and 34 years, 3% of adults in the age between 35 and 44 years old, and 42.5% of men and 50.9% of women are getting affected in their twenties.]5

[Novel concepts have emerged to help better understand acne pathogenesis, these include variation in target cell sensitivity, biological markers, neuro-endocrine, genetic & environmental factors. Plenty of herbal as well as synthetic ingredients are reported to have a remarkably beneficial effect on acne vulgaris. They may have a different mechanism like,

- a) Control sebum secretion.
- b) Antibiotics that inhibit Propionibacterium acne & Staphylococcus epidermidis, the main causative organism of acne.
- c) Keratolytic which removes the keratin layer & prevents the trapping of sebum under the skin.
- d) Anti-inflammatory which prevents the worsening of the condition due to inflammation or redness etc.]7

Due to the medicinal properties of these herbs, we included the herbs possessing the facility to reduce acne conditions through their anti-inflammatory, anti-oxidant, etc properties. The herbs are as follows:

[Curry leaves (*Murraya koenigii*): It has curative antibacterial, antioxidant, and anti-diabetic properties.]8

[Bilva leaves (*Aegle marmelos*): Have curative anti-inflammatory properties.]9

[Neem leaves (*Azadirachta indica*): Have curative antioxidant, anti-inflammatory, antibacterial, and antifungal properties.]10

Turmeric (*Curcuma longa*): [Turmeric (*Curcuma longa*), a commonly used spice throughout the planet, has been shown to exhibit anti-inflammatory, antimicrobial, antioxidant, and anti-neoplastic properties.]11

[Papaya leaves (*Carica papaya* Linn): benefits as an acne medicine.]12

These medicinal plants are easily available, cost-effective, and commonly employed by human beings. So considering these facts we embraced them for designing the formulation of polyherbal face wash gel using the extracts of those herbs.

MATERIAL AND METHODOLOGY:

Plant material: The curry leaves (*Murraya koenigii*), bilva leaves (*Aegle marmelos*), neem leaves (*Azadirachta indica*), and papaya leaves (*Carica papaya* Linn) were collected and washed with water to get rid of the impurities.

Extraction: All the curry leaves, bilva leaves, and neem leaves were taken within the beaker containing 100 ml water, and therefore the aqueous extraction of these leaves was prepared. Papaya leaves ethanolic extraction was prepared by using soxhlet.

Preparation of face wash gel base: Within the beaker 10 ml distilled water was measured and taken. In it, 0.2g, 0.4g, 0.6g, 0.8g, 1g, and 1.2g of carbopol 934 was added respectively to make the base. The 0.6g carbopol 934 in 10 ml water showed the desired consistency required to form the face wash gel base. Then the formulations from F1 to F6 were prepared. Within the respective formulations increasing amount of the prepared extracts and 0.2g turmeric powder (*Curcuma longa*) were added to supply the polyherbal face wash gel.



Figure No.1



Figure No. 2

EVALUATION PARAMETER:

Sr.no.	Test	F1	F2	F3	F4	F5	F6
1	Color	Light green	Light green	Light green	Light green	Light green	Light green
2	Odor	Pleasant	Pleasant	Pleasant	Pleasant	Pleasant	Pleasant
3	Consistency	Good	Good	Good	Good	Good	Good
4	pH: 1% solution of the formulation was used to determine the pH using a calibrated digital pH meter.	7.0	7.0	7.0	7.0	7.0	7.0
5	Spreadability: Voluntarily we had spread the face wash gel on the patch of our hand.	Easily spreadable	Easily spreadable	Easily spreadable	Easily spreadable	Easily spreadable	Easily spreadable
6	Grittiness	No gritty particles	No gritty particles	No gritty particles	No gritty particles	No gritty particles	No gritty particles
7	Foamability	Foam volume 100ml of 5	Foam volume 100ml of 5	Foam volume 100ml of 5	Foam volume 100ml of 5	Foam volume 100ml of 5 minutes	Foam volume 100ml of 5



		minutes	minutes	minutes	minutes		minutes
8	Washability: Formulation was applied to the skin to check it's washing ability.	Easily washable	Easily washable	Easily washable	Easily washable	Easily washable	Easily washable
9	Viscosity: It had been checked with the help of Brookfield viscometer working at 50 rpm speed at room temperature.	Good	Good	Good	Good	Good	Good

Table No.1

RESULT & DISCUSSION:

The organoleptic evaluations like color, odor, and appearance were visually detected. The color of the polyherbal face wash gel was light green with a pleasant odor and good consistency. pH was also maintained throughout the study which was found to be 7. The spreadability of the gel was also maintained and was found to be good. The viscosity of the gel is decided by the Brookfield viscometer. Furthermore, the prepared polyherbal face wash gel was standardized by evaluating the physicochemical parameters like washability, foamability, and grittiness.

CONCLUSION:

It is evident that plants have various therapeutic properties. aside from the wide range of skin products, herbal products have lesser side effects and are used as medication in past. So these herbal medicines are in good demand within the market. To cure the acne conditions an effort was made to formulate and evaluate polyherbal face wash gel possessing anti-inflammatory, antimicrobial, etc. properties. The prepared polyherbal face wash gel showed stable results for the respective evaluation parameters involved in the study. Thus the polyherbal face wash gel was formulated to combat the acne conditions.

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SJIF Scientific Journal Impact Factor
Impact Factor: 8.118



ISSN INTERNATIONAL
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