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Formulation and evaluation of herbal anti acne gel: A review

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Abstract
Herbal medicine has gained global significance both medically and economically. Despite its increasing use, concerns persist over the quality, safety, and effectiveness of these remedies in both developed and developing nations. Herbal treatments are becoming more accepted due to their avoidance of common side effects associated with conventional medicines. One strategy to enhance their efficacy involves preparing extracts and formulations to improve absorption and distribution of active components in the body. Herbal gel, a solid jelly-like substance with varying textures, is applied topically for purposes such as protection, antiseptic action, and antibacterial effects. Inflammatory acne vulgaris can be treated with systemic and topical antimicrobials, but their widespread use is linked to the emergence of resistant pathogens, raising concerns about microorganism resistance and highlighting the need for alternative non-antimicrobial agents. Anti-acne solutions using numerous extracts of common Indian plants are now being developed by a number of global corporations. The purpose of this research is to review all the studies done in past years on herbal formulations that are useful in treatment of acne and also review their Physical examination, washability, skin irritation testing, Spreadability, pH, viscosity, extrudability, swelling index, and accelerated stability tests.

Keywords: Herbal gel, plant extract, acne vulgaris

Introduction
Acne vulgaris is a most common skin disorder of Pilosebaceous Unit, that affects areas containing the largest oil glands, including the face, back, and trunk [1]. It is generally characterized by formation of seborrhea, comedone, inflammatory lesions and presence of bacteria Propionibacterium acnes, Staphylococcus epidermidis and Malassezia furfur in the follicular canal and sebum production [2]. Propionibacterium acnes have been described as an obligate anaerobic organism. It is implicated in the development of inflammatory acne by its capability to activate complements and by its ability to metabolize sebaceous triglycerides into fatty acids, which chemotactically attract neutrophils. On the contrary, Staphylococcus epidermidis, an aerobic organism, usually involves in superficial infections within the sebaceous unit [3]. In certain European and Asian countries, research is being done on the millennia-old practice of herbal treatment. Considerable work has been done that is beyond and beyond the capabilities of the typical human. The technologically enhanced lifestyle of the twenty-first century has given human sorrow many names. The nicest part about utilizing herbal medicine is that it has no unsuccessful cures and no adverse effects, making it suitable for users of all ages. Formulations containing two or more herbs are referred to be poly herbal [4]. Several studies have been done using extracts of neem leaves (Azadirachta indica) Family: Meliaceae) and turmeric rhizomes (Curcuma longa) Family: Zingiberaceae), combined with a variety of other herbal remedies such as Rubia cordifolia (Family: Rubiaceae) and Berberis aristata (Family: Berberideceae) [5, 6]. Using gels topically at disease sites has several benefits, including a quicker release of the medicine at the site of action, regardless of its water solubility. Of the medication in contrast to ointments and creams [7].

Acne
Acne Long-term skin disorder known as acne develops when dead skin cells clog hair sacs. Acne vulgaris is the common name for acne. The majority of those impacted by this are between the ages of 11 and 25. The development of both inflammatory and non-inflammatory lesions in the hair follicles and/or sebaceous glands, together known as the pilosebaceous unit, is what defines it. Puberty is often accompanied by mild acne, but severe cases can leave scars even after treatment and result in an unpleasant appearance. In real life, acne can be categorized into three severity levels based on the severity of the symptoms: mild, moderate, and severe.

Non-inflammatory lesions: They fall into two categories: closed comedons (white heads) and open comedons (blackheads).

Inflammatory lesions: Lesions that are inflammatory in nature can appear as nodules, cysts, papules, or pustules. The development of seborrhea, comedones, inflammatory lesions, bacteria in the follicular canal, and sebum production are the typical characteristics of acne vulgaris [8, 9].

Types of acne [10, 11]
Rosacea, rosacea, acne
It's a skin condition that affects adults, mostly women, and causes the facial blood vessels to enlarge, giving the appearance of being flushed. Rosacea is a common adult acne-like skin condition that is chronic, incurable, easily controlled, and medically treatable. Rosacea typically affects the middle third of the face, primarily the nose, causing intermittent flare-ups and relief. The skin may be clear for weeks, months, or years at a time before the symptoms reappear repeatedly. Rosacea tends to appear in

phases and results in facial skin inflammation, primarily around the nose, forehead, cheeks, and chin. Rosacea manifests as redness of the face, small red pimples, and fine red lines on the skin of the face. A large red nose with a bulbous shape. Eye conditions such as conjunctivitis and swollen, red eyelids.

Acne vulgaris

The most common form of acne; usually affects people from puberty to young adult hood. Hickey, pimple, zit a small inflamed elevation of the skin; a pustule or papules which are common symptoms in acne. Difference between a pimple and acne: Unlike common acne, rosacea is not primarily a disease of teenagers but occurs most often in adults (ages 30-50), especially in those with fair skin. Different than acne, there are usually no blackheads or whiteheads in rosacea. Certain people get one or two spots off and on while others get frequent eruption of spots with lots of pus-filled pimples indicates acne which is a chronic or prolonged condition that affects many teens and adults. Almost everyone in the world experiences pimples at some point. As soon as the body enters the puberty stage, around the age of 12, hormones begin to be released and begin to function in a person's body regardless of gender. At this point, food or pollution can upset the balance of hormones.

1. Acne Treatment [12, 13]

The course of treatment for acne is determined by its severity and state, which can range from mild, non-inflammatory come-dons to inflamed papules or pustules. This typically indicates that Propionibacterium acnes is present. There are options for both systemic and topical therapy to treat acne. Modern acne therapy aims to disrupt the pathogenic pathway at one or more points, in contrast to the traditional treatments in the inflammatory phase, which involve topical and systemic antibiotics that function as both antimicrobial and anti-inflammatory agents. Long-term overuse of antibiotics has increased the resistance of acne causing bacteria, such as Propionibacterium acne and Staphylococcus epidermis, to several antibiotics used in acne treatment.

2. Gel [14]

A gel is a system of at least two constituents that is solid or semisolid and is made up of a condensed mass that is surrounded and penetrated by a liquid. Gels and jellies have more of a solid than a liquid quality despite being made up of small amounts of solid particles scattered throughout a sizable volume of liquid. The presence of cutaneous structure imparting solid-like distinguishes gel from jelly. Properties is what The World Health Organization (WHO) has defined herbal medicines as completed, labelled medicinal products that include plant material or a combination of plant materials, as well as aerial or subterranean plant parts that contain active ingredients. The use of herbal formulations as antimicrobial, anti-diabetic, anti-aging, anti-arthritic, anti-depressant, anti-anxiety, anti-inflammatory, and anti-HIV treatment agents has become widely accepted therapy for Alzheimer's disease, asthma, migraines, cirrhosis, and memory-boosting exercises.

3. Herbal gel methodology [15]

3.1. Gathering of Unprocessed Drugs: The local market was where the raw drugs were gathered. Subsequently, they were appropriately identified and preserved for additional handling. Extraction of crude drugs: It involved properly washing and grinding the gathered crude drugs into a coarse powder. Using distilled water as a solvent, the Soxhlet extractor was used to extract the powdered crude drugs. Six hours were spent on the extraction process at 100˚C room temperature.

3.2. Extract preparation: To obtain an extract free of solvent, the extract obtained through the above extraction procedure was evaporated using a hot plate. Subsequently, the extract was appropriately preserved in a desiccator in order to make herbal gel.

3.3. Creating the herbal gel: Herbal ingredients are dissolved in water to create the gel. Xanthan gum, propylene glycol, ethanol, methyl paraben, propyl paraben, EDTA, solution, and supplemental methyl paraben were added to the gel's preparation. A 5% herbal gel is prepared using the same process [16, 17].

4. General evaluation methods used for herbal gel preparation

4.1. Physical Appearance

The colour, odour, homogeneity, and consistency of the herbal gel formulation are examined visually. After the gels placed in the container, all developed gels are examined visually to ensure homogeneity. Their appearance and the existence of any aggregates are also examined [18].

4.2. Calculating Viscosity

With spindle number 62.5 the Brookfield viscometer (Brookfield viscometer RVT) was used to measure the viscosity of the prepared gels [19].

4.3. pH measurement

A digital pH metre is used to measure the pH of different formulations. After dissolving one gramme of gel in 100 ml of distilled water, it is kept for two hours. Three separate measurements of the pH of each formulation are usually made [20].

4.4. Spreadability

The term "spreadability" refers to how easily the gel covers a surface when applied to skin or an affected area. 21 Spreadability was determined by applying the subsequent formula.

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

Where, S = Spreadability
M = Weight in the pan (tied to the upper slide)
L = Length of the glass slide
T= Time (in sec) taken to separate the slides.

4.5. Bloom Strength

Using a cylindrical probe with a 0.5 diameter as a fixture, Texture Analyze, which is outfitted with a 5 kg load cell, was utilized to ascertain the gel's bloom strength. The cylindrical probe was positioned beneath the sample container in the center of the platform. The test was started after the probe's height was calibrated. For the study, a trigger force of 10 g was employed [22].

4.6. Washability
Formulations are applied on the skin and then ease and extent of washing with water are manually checked.

4.7. Skin irritancy test
The gel formulation is applied on skin and left for sometimes and checked if it is causing any irritation on skin surface.

5. Formulation of Herbal anti acne gel
During our research we found out that an herbal anti acne gel is prepared by using herbal plant extracts and other excipients. Different plants and parts of plant can be used as active pharmaceutical ingredient.
Here are some plants that are used as API

a. *Hemidesmus indicus* (roots)
b. *Eclipta alba* (fruits)
c. *Coscinium fenestratum* (stems)
d. *Curcubito pepo* (seeds)
e. *Tephrosia purpurea* (roots)
f. *Mentha piperita* (leaves)
g. *Pongamia pinnata* (seeds)
h. *Symplocos racemosa* (barks)
i. *Euphorbia hirta* (roots)
j. *Tinospora cordyfolia* (roots)
k. *Thespesia populnea* (roots)
l. *Jasminum officinale* (flowers)
m. *Garcinia mangostana*
n. *Azadirachta indica*
o. *Rawvolfia serpentina*
p. *Marigold (calendula officinalis)*
q. *Cinnamon (Cinnamomum)*
r. *Tulasi (ocimum sanctum)*
s. *Neem (Azadirachta indica)*
t. *Turmeric (curcuma longa)*

6. Formulation review
During our research, we discovered that various plant extracts are utilized in herbal gel formulations, each possessing distinct properties and requiring specific evaluation methods. Therefore, we reviewed articles from the last 18 years that feature different plant extracts as the main ingredients.

6.1. Viyoch *et al*., 2006 [23]: The aim of this study was to evaluate the efficacy of Thai basil oils and their micro-emulsions, on *in vitro* activity against Propionibacterium acnes. An agar disc diffusion method was employed for screening antimicrobial activity of the essential oils of Ocimum basilicum L. (sweet basil), Ocimum sanctum L. (holy basil) and Ocimum americanum L. (hoary basil) against P. acnes. Minimum inhibitory concentration (MIC) values of the basil oils were determined using an agar dilution assay.These findings indicate the possibility to use Thai sweet and holy basil oil in suitable formulations for acne skin care [23].

6.2. Kumar *et al*., 2007: The present study was conducted to evaluate antimicrobial activities of Indian medicinal plants against these etiologic agents of acne vulgaris. Ethanolic extracts of *Hemidesmus indicus* (roots), *Eclipta alba* (fruits), *Coscinium fenestratum* (stems), *Curcubito pepo* (seeds), *Tephrosia purpurea* (roots), *Mentha piperita* (leaves), *Pongamia pinnata* (seeds), *Symplocos racemosa* (barks), *Euphorbia hirta* (roots), *Tinospora cordyfolia* (roots), *Thespesia populnea* (roots), and *Jasminum officinale* (flowers) were tested for antimicrobial activities by disc diffusion and broth dilution methods [24].

6.3. Sukatta *et al*., 2008: The purpose of the present study was to develop mangosteen anti-acne gel by using 32 factorial design.The result showed that the optimal formula of anti-acne gel with mangosteen crude extract contained water [25].

Carbopol Ultrez-10- used as a gelling agent
Triethanolamine – used to adjust pH
The mangosteen anti-acne gel was satisfactorily effective to control acne inducing bacteria; Staphylococcus aureus, S. epidermidis and Propionibacterium acnes.

6.4. Bhaskar *et al*., 2009: The objective of the study was to develop a topical poly herbal gel for the treatment of mild acne vulgaris. Aqueous extracts of Garcinia mangostana and Aloe vera were formulated in an aqueous based carbopol-934(1%w/w) gel system. Preformulation studies on solubility, partition co-efficient, MIC, MBC were determined along with compatibility studies using a validated HPLC method. Six formulations of the gel were prepared by varying the proportions of polymers and evaluated for their physicochemical properties like pH, spreadability, Viscosity and microbial assay [26].

6.5. Sawarkar *et al*., 2010 [27]: The objective of this study was to develop a topical formulation (Gel) containing hydro-alcoholic extract of Ocimum sanctum, ethanolic extract of Tabernaemontana divaricata, Aloe vera concentrate gel powder and tea tree oil.The measured zones of inhibitions of the formulations were compared with standard antibiotic (tetracycline), standard marketed topical herbal preparation for acne and active ingredients of the formulations. Results of the investigation showed that formulation 5 has greater antibacterial activity (zones of inhibition >16 mm) than other formulations and which is comparable to that of standard marketed topical herbal preparation [27].
Tea tree oil was specially used in the formulation for its anti-microbial and anti-inflammatory properties.
Carbopol 934 was used as gelling agent.
Propyl paraben was used for its anti-bacterial properties.

6.6. Rasheed *et al*., 2011: The main objective of this study was to prepare a poly herbal anti acne face wash gel by using two polymers Carbopol and hydroxy propyl methyl cellulose along with the extracts of plants like Rawvolfia serpentina, curcuma longa and Azadirachta indica.

Results showed that the gels were non-irritant, stable and possess anti-acne activity [28].

6.7. Sandhya *et al*., 2013 [29]: The objective of this research investigation was to formulate and evaluate herbal hydrogel incorporated with the extract of Ipomea pes-tigridis intended for antiacne activity. The formulation was evaluated for various parameters like organoleptic characters, pH, skin irritation test by multiple compartment patch, microbial contamination, extrude ability, spread ability, drug content, diffusion studies using pig skin, accelerated stability studies,

drug excipient interaction studies by FTIR, *in vitro* anti acne and *in vivo* anti- inflammatory activity [29].

Outcome: The formulated hydrogel passed all the evaluation parameters. The hydrogel was olive green in colour and had an excellent fragrance. The diffusion studies revealed that the drug release was in controlled release form. The accelerated stability studies revealed that formulation was stable at room temperature whereas its stability reduced with increase in temperature.

6.8. Sharma *et al*.,2014 [30]: This study was based on the Development and Evaluation of Novel Poly-Herbal Anti-Acne Formulation containing hydro-alcoholic extract of neem leaves, (Azadirachta indica), extract from leaves of Ocimum Sanctum (OS), Aloe vera powder &tea tree oil [30].

These plants have been reported in the literature having good antimicrobial, anti-oxidant and anti-inflammatory activity.

6.9. Santosh *et al*., 2015: The objective of this study was to prepare a herbal gel containing Marigold (calendula officinalis), cinnamon (Cinnamomum), Tulasi (ocimum sanctum), Neem (Azadirachta indica) and Turmeric (curcuma longa) [31].

Carbopol was used as gelling agent.
1. Cinnamon – used for antibacterial properties.
2. Turmeric – used for anti-septic properties.
3. Marigold – used for anti-inflammatory properties.

6.10. Jadhav *et al*., 2016: The present work deals with the development & evaluation of the herbal anti-acne face wash containing extract of Manjishtha (Rubia cordifolia), Sariva (Hemidermusindicus), Vacha (Acoruscalamus), Lodhara (Symplocasrecemesa), and Raktachandan (Pterocarpusantalinus). These plants have been reported in literature having good anti-microbial, anti-oxidant & anti-inflammatory activity. It was very good attempt to establish the herbal anti-acne face wash containing extract of Manjishtha, Sariva, Vacha, Lodhara, Raktachandan [32].

Carbopol 940 was used as gelling agent.
Triethanolamine was used as pH adjuster.

6.11. Jain *et al*., 2017: This study involves preparation of herbal gel for acne and comparison of the gel with standard ciprofloxacin. The plants chosen for preparing gels were Butea monosperma flowers, Nigella sativa seeds and Vitex agnus castus leaves. A non-oily gel formulation for topical application suitable for treating this condition has been prepared using carbopol 940.The gels were subjected to microbial study against P.acne. The result showed that zone of inhibition of prepared gels was equivalent to the standard ciprofloxacin and thus can be a better alternative to allopathic treatment [33].

6.12. Gorle *et al*., 2018 [34]: The objective of this study was to prepare herbal gel formulation containing methanolic extract of Rubia cordifolia on acne. Topical gel formulation was designed by using methanolic extract of roots and stems of Rubia cordifolia in varied concentrations. The gel was prepared by using carbopol 940(1%w/v), Rubia cordifolia Extract, ethanol, propylene glycol, methyl paraben, propyl paraben, EDTA disodium, tri-ethanolamine and required amount of distilled water. Thus, it may be concluded that gel formulations were good antibacterial and antioxidant activity can be used in antiacne activity [34].

6.13. Kamble *et al*., 2019 [35]: Various researches have been proved utility of herbal based formulations for cleaning purpose which also removes excess oil; considering this fact present work was intended to prepare a face wash gel using Psidium guajava seed extract with antioxidant and antibacterial properties. Prepared gel was evaluated for various quality control parameters like; spreadability, pH, consistency and grittiness, etc. The results of quality control parameters were found to be satisfactory [35].

6.14. Chandrasekar *et al*., 2020 [36]: The present research was undertaken to formulate an herbal gel containing Aloevera and turmeric extract. Aloevera and turmeric both these plants possess potential anti-inflammatory immunomodulatory and anti-acne properties. Aloevera and turmeric contain antioxidants, scavenging of free radicals. Both these plants have enhanced efficacy and potency and can be safe and effective against many diseases. These two plants have fewer side effects and toxicity and they have enhanced acne healing and other properties. Results shows prepared gel has promising effect on the anti-acne process [36].

6.15. Mate *et al*., 2021 [37]: In this study, three medicinal plants Citrus sinensis, Curcuma longa and Aloe barbadensis having significant antibacterial potential were selected to formulate a polyherbal gel for the management of acne vulgaris problem. The topical gels were prepared which comprised extract of orange peel, aloevera, and turmeric with a different concentration [37].

Turmeric was specially added for its anti-septic properties.

6.16. Tegeli *et al*., 2022 [38]: in this study various attempts were made to develop and evaluate the herbal anti-acne gel containing Bael extract, Neem extract, Honey to facilitate the topical usage. The plants have been reported in literature having good anti-aging, anti-microbial, anti-oxidant, antiseptic, and anti-inflammatory activity. Various formulation batches were prepared using Carbopol 940 as gelling agent [38].

6.17. Chellathurai *et al*., 2023 [39]: The present work aimed to formulate and evaluate a polyherbal gel using Aloe barbadensis and extract of Vigna radiata for the treatment of acne, a disorder of the skin in which hair follicles and sebaceous glands are blocked, causing inflammation and redness of the skin. Aloe barbadensis pulp was collected and mixed with the extract of Vigna radiata and formulated into a gel using [39].

Carbopol 940- gelling agent
Triethanolamine- pH modifier
Propylene glycol- viscosity modifier
The gel was evaluated for its antimicrobial properties against Staphylococcus aureus, Escherichia coli, and Candida albicans. Antimicrobial agents, such as gentamycin and fluconazole, were used as the standards. The developed

formulation showed promising zone of inhibition.The formulation showed a promising effect on acne together with the additive effect of Aloe barbadensis on skin.

6.18. Salwa *et al*., 2024 [40]: The objective of this study was to produce a Carbopol 940 based gel formula containing an Azadirachta indica leaf extract and evaluate its anti-acne potential. The ethanolic extract was derived from the dried leaves of Azadirachta indica and was subjected to a phytochemical evaluation.

Three gel formulations of Carbopol 940 containing an Azadirachta indica extract in three different concentrations, i.e., 1, 2, and 3% w/w were prepared.
It can be concluded that the acne healing process was faster with the gel formulation containing 3% w/w of the Azadirachta indica extract, proposing that this formulation is a promising candidate for acne healing [40].

7. General Formula

At the end of our study we concluded that the amount of herbal extract can vary according to desired effect of the formulation.
The amounts of extracts used can be as low as 1% and as high as 100% of ethanolic extract.
Plants can be used directly as API or they can be used in a combination with other plant extracts to increase the overall effect of the formulation or to provide any additional effect.
For example- In preparation of the herbal gel using plant extracts like *Hemidesmus indicus* (roots), *Eclipta Alba* (fruits), *Coscinium fenestratum* (stems), Curcubito pepo (seeds). *Mentha piperita* (leaves) are added additionally to provide fragrance to the herbal formulation [24].
Similarly in preparation of gel using extracts of Ocimum sanctum, Tabernaemontana divaricate, Tea tree oil is additionally added because it provides anti-microbial and anti-I flammatory properties to the formulation [27].

8. Excipients

In our study about formulation we concluded that many excipients are used in formulation for different purposes.
Here are some excipients that are used in every anti acne gel formulation.

Table 1: majorly used gelling agents

Ingredient	Uses
1. Carbopol 940	Gelling agent
2. Carbopol 934	Gelling agent
3. Carbopol ultrez	Gelling agent

Table 2: Additional excipients for different contributions

Ingredients	Uses
1. Propylene glycol	Moisturizing agent
2. Triethanolamine	pH adjuster
3. Methyl paraben	Anti-bacterial
4. Propyl paraben	Anti-fungal
5. Distilled water	To make up the volume

In our research we found out that majority of the formulations are prepared using Carbopol as gelling agent and triethanolamine as pH adjusting agent.
Propylene glycol is used to moisturize the formulation and methyl and propyl paraben are used and antibacterial and antifungal agent respectively.

In our study we found that Carbopol 940 was used in 72% formulations and Carbopol 934 and Carbopol ultrez-10 was used in 27% and 5% formulations respectively.
Triethanolamine was used in 50% formulations
Propyl paraben and Methyl paraben in 44% formulations, and Propylene glycol in 38%. Carbopol 934 and carbopol 940 were mostly used as gelling agent in the formulation as they are biodegradable, bioadhesive, biocompatible, irritation free and not absorbed into body. At the end of our research we were able to purpose a general formula for the preparation of herbal anti acne gel.

Table 3: general formula

Ingredients	Amounts used for 100gm preparation
Drug extract	1-95% herbal extract
Carbopol 940	q.s-10gm
Triethanolamine	0.025-2.1gm
Propyl paraben	0.025-0.5gm
Methyl paraben	0.025-0.5gm
Distilled water	q.s

Conclusions

From this study the important findings can given as under

1. Herbal anti acne gel can be formulated as reported in almost all research
2. It has been found that the extract from various species viz: *Hemidesmus indicus* (roots), *Eclipta alba* (fruits), *Coscinium fenestratum* (stems), *Curcubito pepo* (seeds), *Tephrosia purpurea* (roots), *Mentha piperita* (leaves), *Pongamia pinnata* (seeds), *Symplocos racemosa* (barks), *Euphorbia hirta* (roots), *Tinospora cordyfolia* (roots), *Thespesia populnea* (roots), and *Jasminum officinale* (flowers) plants Citrus sinensis, Curcuma longa and Aloe barbadensis, Azadirachta indica, Rubia cordifolia etc, can be incorporated in the formula depending upon the role of active ingredient.
3. Plant extracts can be used as single active ingredient or can be used in combination of several plant extracts
4. In our study we found out that around 30% formulations are prepared using single plant extract and around 70% formulations used more than one plant extracts as active ingredients.
5. Depending upon the contributions towards the formulation, various excipients can be Included in the formulations.
6. Excipients need to be paid attention for incorporation into formula are Carbopol 940, Carbopol 934, triethanolamine, propyl paraben, methyl paraben, propylene glycol, out of which Carbopol 940 was used in around 70% of the formulations, carbopol 934 was used in 25% and Carbopol ultrez-10 was used in 5% in the formulations that we studied.
7. Triethanolamine, Methyl paraben, Propyl paraben and propylene glycol was used in almost 50% formulations.

Herbal plant extracts have nematocidal, insecticidal, fungicidal, and antimicrobial qualities. It is believed that herbal cosmetics are safer over an extended length of time. However, quality control testing must be done for these preparations because the safety and efficacy of herbal cosmetic products are extremely important. Applying gels topically to the pathological site has several benefits, including a quicker release of the medication to the site of action. Recently herbal medicines are more considered as

safe with fewer side effects than synthetic drug for the treatment of acne vulgaris. Therefore, in the global market. Natural remedies including herbal formulation are in great demand. It is a very good attempt to formulate and evaluate the polyherbal anti-acne gel along with the stability studies.

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