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Acne | Top Ingredients for Treatment

Acne is a skin condition in which the hair follicles become blocked with grease and sebum, resulting in the formation of black heads, white heads, and pimples. These pimples are sometimes loaded with pus, which oozes later. However, cosmetic formulators have now paved their way out to treat acne of all kinds by combining various unique substances and creating something new.

In order to produce skin care goods, it is critical to understand the most effective ingredients, as well as their concentrations

and percentages, in order to develop the best products for the client's demands.

1. Acids

Acids have now become an essential part of our beauty routine. Without treating the skin with specific helpful acids that are FDA authorized and dermatologist advised, a skincare routine appears incomplete.

There is a vast list of authorized acids that can help acne-prone skin. They can be used not only as a prophylactic measure to avoid acne, but also to treat acne and eliminate scars.

- **Azelaic Acid**

Azelaic acid belongs to the dicarboxylic acid class of medicines. It works to cure rosacea by reducing skin edoema and redness. It treats acne by destroying the bacteria and lowering the synthesis of keratin, a natural component that can contribute to the development of acne.

Azelaic acid is commonly used in levels of 15-20%, which are regarded as safe and effective for treating acne and pimples on the skin.

- **Ascorbic Acid**

Ascorbic acid, a form of vitamin C, cures acne scars by stimulating the manufacture of collagen, a protein responsible for the structure of your skin. Vitamin C is a water-soluble vitamin that is used to treat acne and minimize acne scars by targeting the deepest layer of skin.

This study suggests that Vitamin C contains anti-inflammatory properties and can be used to treat disorders such as acne vulgaris and rosacea. [Telang, P. S. \(2013, April\)](#)

Ascorbic acid (L. Ascorbic acid) Within 10-20% concentrations of vitamin C, it is absolutely usable. Every skincare product contains a varied concentration of vitamin C, which is added based on the skin's or client's needs. Some severe cases of acne may necessitate a significantly higher dose of Vitamin C than others.

- **AHA**

ALPHA HYDROXY ACIDS AHAs may also aid in the treatment and prevention of recurrent acne. Acne blemishes form when your pores become obstructed with a buildup of dead skin, oil, and germs. Exfoliating with AHAs can assist in loosening and removing the congestion.

The most often utilized AHAs are glycolic acid, which is obtained from sugar cane, and lactic acid, which is derived from muscles during exercise. Citric acid generated from oranges and lemons, hydroxy octanoic acid, and 2-hydroxydecanoic acid are some more AHAs.

AHAs are typically chosen in percentages ranging from 10% to 15% and are beneficial when added to skincare products to treat acne.

- **BHA**

Beta-hydroxy acid is abbreviated as BHA. Salicylic acid is the most frequent form of BHA. Salicylic acid is a bactericide that can be used to treat warts and other dry skin conditions.

BHAs are oil-soluble organic carboxylic acids that function on the skin's surface and deep within the pore. They're best for normal to oily skin that's prone to bumps, blockages, acne, and clogged pores, according to Markowitz.

Salicylic acid at a concentration of 1%-2% is thought to be safe for use in skincare products on acne-prone skin.

- **PHA**

PHAs are polyhydroxy acids that are chemical exfoliants which share many similarities with AHAs and BHAs. PHAs, on the other hand, have a greater molecular size than AHAs and BHAs, therefore they can only exfoliate the skin's surface layers. PHA can be utilized after cosmetic operations like laser and microdermabrasion, but only with your dermatologist's permission.

As per these studies, some people believe that a cocktail of exfoliating AHAs, BHAs, and PHAs can be created in one bottle. PHAs are best for sensitive skin because they only affect the top layer of the skin. ([Hoshikawa, 2019](#))

PHA is available in a variety of concentrations. PHA does not have a specific proportion. PHA levels below 12%, on the other hand, are thought to be preferable for treating and combating acne.

2. Botanicals

Botanical skincare entails developing botanical skincare products with natural extracts and oils from plants and flowers in their rawest form. Botanical compounds are substances generated directly from plants. Many botanicals aid with the prevention and healing for acne.

According to these studies and latest findings, Long-term antibiotics with isotretinoin, pose possible hazards such as bacterial resistance, liver impairment, and teratogenic effects. This research examines the evidence-based functions of water, alcohol, and glycerine-based botanicals in acne and rosacea, with a focus on topical treatments. ([Schwartzberg, L., 2021](#))

- **Water/Glycerin Based Botanical**

A botanical extract based on water and glycerin are best for most skincare applications including acne. Water/Glycerin-based botanical extracts are more convenient and powerful than powdered extracts. Most powdered extracts have been denatured (killed) during the drying process and contain trace alcohol residue from the extraction process.

- Cucumber Extract
- Aloe vera
- Aloe Vera 10X-D cosmeceutical grade aloe
- Green Tea Extract
- Soy Extract

Aloe Vera 10X is a ten-fold more concentrated, organically grown, and 100% pure Aloe Vera juice with natural flavor and color. Active Aloe Vera polysaccharides abound in Aloe Vera 10xd. The enzymes included in aloe vera 10xd are excellent for exfoliating. Cosmetics, shampoos, skincare, and more can be made with Aloe Vera 10X-D Gel.

As per research and studies Aloe Vera 10XD is 50-400 Daltons and are the ideal size for skincare compounds. The regular Aloe vera has a molecular weight of 2000 Daltons, which means it includes larger molecules and is less absorbed into the skin. ([Vinas, 2020](#))

- **Alcohol Based Botanical**

Some botanical extracts are combined with alcohol to make tinctures of various kinds. Before adding the tincture to the botanical extracts, it is sometimes evaporated in a vacuum. Following are the various types of alcohol employed.

- Propylene glycol
- Propanediol
- lilac tincture

- **Glycerine Based Botanicals**

Glycerin is a sugar alcohol made from animal, plant, or petroleum sources. Plant-based glycerin is known as vegetable glycerin. To make the botanicals more absorbable and moisturize the skin, glycerine is added to them. It gives the product a gelatinous appearance, making application easier. Glycerine is very beneficial for sensitive and delicate skin.

Glycerin comes in two varieties: -

- Vegetable
- Petrochemical.

Pure vegetable glycerine is thought to be the best for use on the face or as a solvent in botanical compounds. In order to manufacture a skincare product, a botanical mixture must include 60% or more glycerine.

3. Carrier Oils

Natural extracts from nuts and seeds are known as carrier oils. These can be used directly on the skin for a variety of reasons, or they can be blended with essential oils for a variety of reasons. To make essential oils more skin-friendly, they are always combined with carrier oils. When applied alone on the skin, essential oils can cause itchiness, redness, and acne. Carrier Oils are categorized into three subcategories.

This research was primarily focused on finding the appropriate carrier oils for dermatological usage and then

compiling scientific data to support the use of carrier oils in conjunction with essential oils for dermatological use, particularly in skin disorders such as acne. ([Orchard, A. and van Vuuren, S.F., 2019](#))

Unrefined: Carrier oils that have not been treated or refined retain their natural properties and are more natural. It maintains its health benefits by being more real and is known as refined carrier oils.

Refined: Refined carrier oils are cleaned with some sort of bleaching agent to remove any impurities. It may also remove some of the carrier oil's important components and chemicals, which are beneficial to the skin.

Cold Pressed: The cold press method of extracting carrier oils is a chemical-free process in which nuts, or kernels are placed in a press machine and a screw is inserted to remove the fatty part and compress out the oil. Incidentally, if the nut or seed is hard, some heat may be produced throughout the process. As a result, the oil would suffer minor harm.

Heat Pressed: Heat pressed carrier oils are typically less expensive and can remove many impurities and harmful compounds, but they can also degrade the oil's essential components.

As per the author of this article, Argan Oil, Rosehip Oil, Olive Oil, Almond Oil are the best carrier oils focused to treat acne. ([Neha, 2020](#))

The percentage of carrier oils used in each skincare product widely varies as per the nature of the product being developed.

4. Essential Oils

Plants, flowers, and leaves are used to extract essential oils. The health advantages of essential oils are numerous. They are used on the skin to treat a variety of skin conditions, the most common of which is acne. To make essential oils gentler and safer for the skin, they are often diluted with specialized carrier oils.

As per certain studies, Traditional folk medicine has used essential oils for a long time. They're also being researched in contemporary medicine for their potential health advantages. One of the major causes of acne is bacteria, therefore this includes eliminating germs. Several essential oils have antibacterial properties. ([Carey, 2019](#))

Antibacterial and antiseptic effects are also present in essential oils. As a result, essential oils are employed as a natural pain reliever in many herbal and homoeopathic treatments. There are many various types of essential oils on the market, each with its own scent and consistency.

- Tea Tree Oil
- Rosemary
- Thyme
- Oregano
- Cinnamon
- Peppermint
- Lavender
- Grapefruit
- Sandalwood
- CBD
- Jojoba
- Hemp oil

Essential oils are often utilized in their 100% purest form, free of additives and other substances. When essential oils are used to skincare products, they increase their effectiveness while also adding a pleasant smell. Typically, only 1-2 drops of essential oils are required to have an effect. However, depending on demand and requirement, the number of drops can be increased.

5. Fatty Alcohols

In skincare products, fatty alcohols are utilized as emollients and thickeners. Fatty alcohols aren't irritating and can even help dry skin.

As per various research, Alcohols come in a variety of forms, each with its own set of applications and health consequences. Some are regarded as safe for topical usage, especially in the treatment of acne. ([100percentpure, 2018](#))

They come in the form of translucent oily liquids or waxy solids. Fatty Alcohols are of various kinds.

- Lauryl Alcohol
- Stearyl Alcohol
- Oleyl Alcohol
- Cetearyl alcohol

Many shampoos, lotions and conditioners include all the above-mentioned alcohol. It works as a lotion in order to retain moisture in the skin.

The percentages of alcohol used should be critically monitored. Exceeding the limits of alcohol can sometimes cause extreme dryness and irritation on the skin.

6. Hydroquinone

For a long time, hydroquinone has been employed in the cosmetic business. It's been used to cure acne's post-inflammatory scars. It not only treats acute acne but also helps to clear up older acne. The use of hydroquinone on a regular basis may help to erase dark spots and treat hyperpigmentation. For improved outcomes, many cosmetic businesses have been granted permission to utilize hydroquinone in their products.

According to the latest scientific research, more melanin is found in cases of hyperpigmentation induced by acne due to an increase in melanocyte production. Hydroquinone is considered safe and effective by the FDA. ([Cherney, 2020](#))

Freckles, melasma, age spots, and acne scars are all treated with hydroquinone, a skin-bleaching chemical. Hydroquinone products with 2% to 4% hydroquinone provide the best effects while providing no harm to the skin. In the market and pharmacies, various brands of hydroquinone-containing products are accessible.

7. Isotretinoin

Isotretinoin is a member of the retinoid's family of medications, which includes compounds related to vitamin A.

Isotretinoin oral tablets and topical lotions relieve severe acne by lowering the quantity of natural oil produced by

your skin, reducing the likelihood of clogged pores. The medication also destroys acne-causing germs and reduces redness and discomfort. This drug is used to treat severe nodular acne that has failed to respond to prior treatments.

Studies state that Isotretinoin, both systemic and topical, remains the most effective treatment for severe acne, as well as many cases of more mild acne that have failed to respond to previous treatments. ([Layton, 2009](#))

Isotretinoin cream or gel with a low concentration of the active component tretinoin 0.025% is usually used first in less severe situations. However, if you have a more severe case of acne, you can raise the dosage.

8. Kojic Acid

Antimicrobial properties can be found in kojic acid. It has the potential to aid in the battle against a variety of bacteria strains. This can aid in the treatment of acne caused by skin infections. Acne scars may also be lightened.

Kojic Acid is a naturally occurring compound found in a variety of fungi, as well as a result of the fermentation of a Japanese rice wine called Sake.

Research Suggests that Kojic acid inhibits the synthesis of excess pigment by blocking the enzyme tyrosinase, which is responsible for the production of melanin. As a result, skin appears lighter and clearer. Kojic acid can help with everything from acne scars to dark spots, melasma to sun damage. ([Bhattacharya, 2020](#))

Kojic acid is most commonly utilized at a concentration of 2%. Kojic acid can be used alone, but for best benefits, it is usually combined with vitamin C or alpha arbutin acid.

9. Vitamins

Vitamins usually have a long list of advantages. It is critical to consume meals that are high in various vitamins. However, occasionally the vitamins obtained from diet are insufficient. As a result, an alternative supply of vitamins must be used to meet the demand. Oral vitamins, as well as skincare products containing vitamins, are recommended for fairer, acne-free skin. Best vitamins for the skin are as follows: -

- **Vitamin A - Retinoids:** According to Science, 0.25% retinol has a higher chance of treating the acne when combined with other ingredients.
- **Vitamin D:** Vitamin D also has anti-inflammatory properties; thus it may help to alleviate acne symptoms. Although taking vitamin D supplements is beneficial, the best source of vitamin D in the body is sunlight.
- **Vitamin E:** One of the antioxidants considered as a possible acne therapy is vitamin E. It does not have much of an effect on acne on its own, but when mixed with other substances, it may show some effectiveness in treating or reducing acne.

- **Zinc PCA:** Studies claim that the zinc salt of pyrrolidone carboxylic acid is zinc PCA. It helps to control acne and reduce sebum secretion while also keeping the skin moist. ([Sivak, 2019](#))
It is one of the most well-organized and effective components in the cosmetics business. Long utilized for its astringent, antifungal, antioxidative, and anti-inflammatory effects, the zinc salt of l-pyrrolidone carboxylate (zinc PCA)

10. OTC Drugs for Acne

Over-the-counter medications are abbreviated as OTC. Oral drugs as well as topical treatments can be used to treat these conditions. Certain over-the-counter topical creams and lotions are available that can be purchased and used without a prescription.

- **Benzoyl Peroxide:** Benzoyl peroxide eliminates acne-causing germs, removes excess oil from the skin, and removes dead skin cells that block pores. It works well in concentrations ranging from 2.5 to 10%. Benzoyl Peroxide is mostly used to treat mild to moderate acne that has not developed. It's found in a variety of lotions, face

washes, moisturizers, cleansing lotions, gels, and foams.

- **Sulfur:** Sulfur helps to exfoliate dead skin cells that block pores and excess oil. It's frequently used in conjunction with other substances including salicylic acid, benzoyl peroxide, and retinol. Sulfur-containing products can create dry skin. It is mostly used in 3% to 8% concentration.
- **Retinol:** Retinol creams, gels, and serums sold over the counter typically contain 0.25%-1.5% retinol and are used to treat acne on a smaller scale. Retinol is found in a variety of skincare treatments for acne-prone skin. Retinol-containing skincare products are also used by some makeup brands for their acne-prone customers.

Many acnes sufferers report that over-the-counter retinoids can also be used to treat acne and acne scarring. It unclogs pores, smooths scars, and improves tone and texture by working on both the surface and middle layers of the skin. ([Vandergriendt, 2020](#))

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