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Application of Herbal Products in Skin Care

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ABSTRACT

This study aims to create awareness about the beneficiary effects of herbal medicines and their effects on skincare. Since ancient times, in India, herbs have been used for curing various ailments. Herbs and spices have been used in maintaining and enhancing human beauty since time immemorial. Natural ingredients have been used for centuries for skincare purposes. the main benefits reported for plant extracts, used in skincare, include antioxidant and antimicrobial activities. Plants having a medicinal activity because of bioactive ingredients present in plants include antioxidants, vitamins, essential oils, tannins, alkaloids, dyes, carbohydrates, and terpenoids. Nowadays, world wild herbal plants are used in cosmetics because of that herbal cosmetics have gained more popularity and more acceptability among the people due to their lesser or almost nil side effects. In some cases, synthetic cosmetic products may cause severe damage to human skin as those products may contain harmful chemicals. Natural ingredients like herbs, fruits, flowers, barks, rhizomes, leaves, seeds, spices, etc. This ingredient helps to improve your skin and overcome the problem related to the skin like anti-acne, anti-aging, etc.

INTRODUCTION:

From the very beginning of human existence, man has familiarized himself with plants and used them in a variety of ways throughout the ages. Primitive man in search of food and to cope successfully with human sufferings began to distinguish those plants suitable for the medicinal purpose from others with definitive pharmacological action. At this stage, India has a unique position in the world where several recognized Traditional systems of medicine i.e., Ayurveda, Siddha, Unani, Homeopathy, Yoga, and Naturopathy [1]. Medicinal plants have been recognized as potential drug candidates because they possess drug-like properties [2]. Herbal medicine or phytomedicine is the use of plants for medicinal and therapeutic purposes for curing diseases and improve human health. These compounds protect plants against microbial infections or infestations by pests. Phytochemicals are active ingredients that possess therapeutic properties that are considered as a medicine or drug. However, all plants synthesize phytochemicals, which are beneficial for our health as they cannot be synthesized in the human body [3]. People have been using plants as medicine without scientific knowledge and proper guidance for thousand of years ago. Using plants as medicines it is considered as a natural healing Medical System. [4]. The use of bioactive extracts or phytochemicals from a variety of botanicals in cosmetics accomplishes two functions: care of the body and as ingredients to influence the biological functions of the skin, providing the nutrients for healthy skin [5]. Generally, botanical products are a rich source of vitamins, antioxidants, essential oils and oils, hydrocolloids, proteins, terpenoids, and other bioactive compounds [6]. (WHO) has distinct herbal drugs as complete, labeled medicinal products that have vigorous ingredients, aerial or secretive parts of the plant, or other plant material or combinations. World Health Organization has set precise guidelines for the evaluation of the safety, efficacy, and quality of herbal medicines. WHO estimates that 80% of the world populations currently use herbal drugs for major healthcare. The herbal drug is a chief constituent in traditional medicine and a common constituent in ayurvedic, homeopathic, naturopathic, and other medicine systems [7].

ACNE

Acme" is a Greek word for acne which means "Prime of life". Acne is a chronic inflammatory state which occurs in the skin (Acne vulgaris) [8]. Acne vulgaris is a disease of pilosebaceous unit characterized by the formation of open and closed comedones, papules, pustules, nodules, and cysts [9]. Both males and females develop acne in approximately equal

proportions. The age of onset of acne is between 10-14 years and usually resolves by age 20-25 years [10].

Figure No. 1: Acne

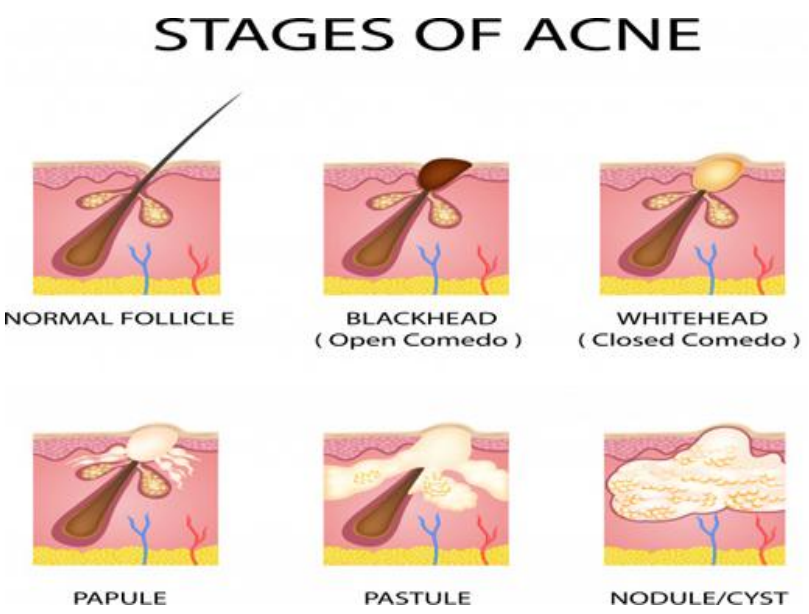

Figure No. 2: Stages of acne

Pathogenesis

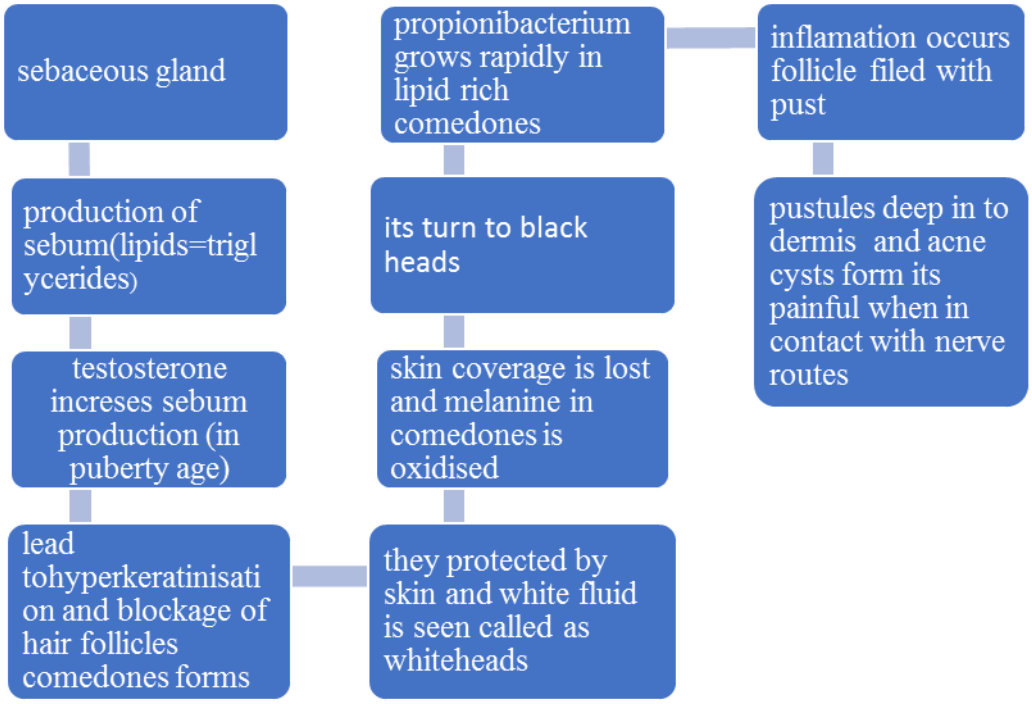

Figure No. 3: Schematic representation of pathogenesis of acne formation

Main Factors which are Responsible for the Formation of Acne are as Follows:

1) Increased sebum production-

Sebum is secreted by the sebaceous gland and comprises an oily mixture of triglycerides, wax esters, squalene, free fatty acids, and small amounts of cholesterol, cholesterol esters, and diglycerides. Sebum production is regulated by many factors that activate pathways involved in cell proliferation and differentiation, lipogenesis, hormone metabolism, and cytokine and chemokine release [11]. As far as the production of sebum in the body is concerned, it is produced by the sebocytes dissolution in sebaceous lobules than they are passed to the follicle via sebaceous ducts, and finally, reach to the skin surface using infundibulum. SG is mainly found in the face and truck, i.e., the regions where acne generally forms [12-13].

2) Hyper-cornification of pilosebaceous duct-

Obstruction of the pilosebaceous canal precedes the development of acne lesions. The obstruction is produced by the accumulation of adherent keratinized cells within the canal that form an impaction obstructing the flow of sebum. The cause is unknown but the process may be under the influence of androgens [14]. It may also be due to an abnormality in the

sebaceous lipids resulting in a relative hyperproliferation of corneocytes [15]. The result of this hyperkeratinization is the development of a comedo (pl. comedones) {open comedones = blackhead and closed comedones = whitehead}. Microscopically these lesions are dilated pilosebaceous ducts containing a mixture of cornified follicular epithelium, sebum, bacteria, and saprophytic yeasts [16].

3) Abnormal bacterial function-

The anaerobic *P. acne* proliferates in the ideal environment of the comedo: an obstructed lipid-rich lumen with decreased oxygen tension. This overgrowth of P. acnes hydrolyses sebum triglycerides, producing free fatty acids which may lead to micro comedy formation [17-18].

4) Production of inflammation-

The development and course of acne are influenced by immunological and inflammatory factors in various ways. Earlier it was thought that inflammation is produced as the result of other factors responsible for acne, especially bacterial metabolites but from the new data, it was found that the patients of acne have a leaning of follicular inflammation from the outset [19].

Other Factors that are Responsible for Acne:

- **Dietary contribution-** A diet containing huge refined sugars or carbohydrates like bread and chips.
- **Genetic contribution** If one of your parents had severe acne, your acne will likely be more difficult to control.
- **Hormonal change-**Young people are most at risk for developing acne during puberty. During this time, the body undergoes drastic hormonal changes. These hormones can trigger oil production, leading to an increased risk of acne. Hormonal acne related to puberty usually subsides when a teenager reaches adulthood.
- **Medicines-** Some medications may cause or worsen acne, such as those containing iodides, bromides, or oral or injected steroids (either the medically prescribed prednisone [Deltasone, Orasone, Prednicen-M, Liquid Pred] or the steroids that bodybuilders or athletes sometimes take). Other drugs that can cause or aggravate acne are anticonvulsant medications and lithium (Eskalith, Lithobid). Most cases of acne, however, are not drug-related.

➢ **Stress-** A study in Singapore with adolescents reveals that there is a correlation between stress and acne severity [20].

➢ **Cosmetics**- cosmetic products such as foundation, blush, face powder, etc. former makeup was heavier and often oil-based which lead to blockage of the skin pores and an increased occurrence of acne.

➢ **Dirt**- Blackheads are oxidized oil, not dirt. Sweat does not cause acne and is produced by entirely separate glands in the skin. On the other hand, excessive washing can dry and irritate the skin.

Aging

Figure No. 4: Aging process

Skin is the largest organ in the human body, which helps to cover the muscles, bones, and all parts of the body [21]. Skin performs a wide variety of functions resulting from chemical and physical reactions inside these components [22]. Aging is a natural and multi-factorial phenomenon characterized by the accumulation of degenerative processes that are in turn underpinned by multiple alterations and damage within molecular pathways. The alterations and damage ultimately compromise cell and tissue functions [23-24]. Aging of the skin can be attributed to continuous external insult from innate and external factors, resulting in increased wrinkling, sagging, laxity, and uneven skin texture [25]. Aged skin, especially

photoaged skin, is coarsely wrinkled and manifests as a decrease in skin thickness and elasticity, dryness, distorted barrier function, and altered penetrability and pigmentation [26]. Over the last decade, there has been an increase in scientific interest in reducing the appearance of aging [27]. During aging, there is an imbalance between collagen production and degradation, its production decreases whereas the level of collagen degrading enzymes increases. Skin wrinkling is one of the important features of the aging of human skin, but the exact mechanism of wrinkles formation is still unknown. [28]. the use of plant extracts and herbs has its origin in ancient times, with the earliest records originating from ancient China and Egypt [29]. Plants produce a great variety of organic compounds and can be classified into three major groups: terpenoids, alkaloids, and phenolic compounds [30]. Phenolic compounds are capable of inhibiting free radicals so, can retard the aging process. Aging causes the pathogenesis of the skin [31].

The Aging Processes

Aging can be viewed as the accumulation of changes in cells and tissues resulting from a greater disorderliness of regulatory mechanisms that result in reduced robustness of the organism to encountered stress and disease. The notion of greater disorderliness in aging is illustrated by the erosion of the orderly neuroendocrine feedback regulation of the secretion of luteinizing hormone (LH), follicle-stimulating hormone (FSH), adrenocorticotropic hormone (ACTH), and growth hormone (GH). These changes are manifested as menopause, andropause, adrenopause, and somato- pause. Skin aging is part of the slow decline in appearance and function that appears to be attributed in large part to the drastic decline of hormones in the body after adulthood. At the cellular level, several processes are involved in the physiology of aging and the development of some age-related diseases. The process of apoptosis signifies the process of nontraumatic and noninflammatory cell death. Dysregulation of apoptosis has been implicated in the increased incidence of cutaneous malignancies that are more prevalent in older individuals, such as basal cell carcinoma, squamous cell carcinoma, and malignant melanoma. Cell senescence limits cell divisions in normal somatic cells and may play a central role in age-related diseases. Telomeres are thought to play a role in cellular aging and might contribute to the genetic background of human aging and longevity. It has been speculated that the limited proliferation potential of human cells is a result of the telomere shortening that occurs during DNA synthesis at each cell division. Photoaging may accelerate the shortening of telomeres and push cells into senescence sooner. That could be the reason why various growth factors may affect the speed

and quality of wound healing. Biochemical insults also arise within aging cells, in part from the action of reactive oxygen species generated and scavenged incompletely throughout the cell cycle. Aging-associated changes also occur between and among cells via alterations in the intercellular matrix, the intercellular exchange of trophic factors, the release of inflammatory cytokine mediators, and the degree of infiltration by other associated cell types. Also, the quantity and distribution of various growth factors may affect wound healing. The decline of DNA repair in combination with loss of melanin increases the risk of photo-carcinogenesis and can also cause the decline of enzymatically active melanocytes (10–20% each decade) that contributes to increased sensitivity to UV radiation. However, it is not known why free radical damage does not adversely affect all of the body's cells (e.g., gonadal germ cells) [32].

Factors Involved in Skin Aging

Intrinsic factors

It is an endogenous mechanism of aging due to

- Free radical mechanism
- hormonal changes
- Role of telomere
- DNA damage
- Chronological aging

A. **Free radical mechanism**: To maintain equilibrium in our body there is a constant generation and removal of the free radicals. An imbalance in this process results in the formation of excessive free radicals that are toxic to the body and cause aging [33]. In the process of intrinsic aging, these free radicals are formed by oxidative cellular metabolism. The free radicals produced in the process, are removed by anti-oxidative mechanisms, but as the age progresses, there is a decrease in the anti-oxidative mechanisms and eventually excessive free radicals in our body which leads to cellular aging [34].

B. **Hormonal mechanisms**: The skin aging takes place by certain modifications in growth factors and hormonal activity. The decline in several hormones in our body such as estrogen,

testosterone, dehydroepiandrosterone, and its sulfate ester and also melatonin, insulin, cortisol, thyroxine, and growth hormone can deteriorate several skin functions.[35].

C. **Role of telomere**: Telomere protects the chromosomes from degradation and also prevents cellular DNA damage. Due to the shortening of the telomeres, the t-loop configuration is disrupted which initiates DNA damage response, apoptosis, senescence, or cell cycle arrest. Hence the shortening of the telomeres is responsible for intrinsic aging and photoaging.[36].

D. **DNA damage**: Mitochondria consume oxygen and produce energy, and as a result, there is a continuous production of reactive oxygen species. These reactive oxygen species cause oxidative stress after exhaustion of cellular defense mechanisms and they also cause further mutation of mitochondrial DNA. These mitochondrial DNA cause high mutation rates because of inefficient recognition and repair mechanism.12 This damaged mitochondrial DNA produces less energy which affects the energy supply to the cells which in turn leads to cellular dysfunction. The damaged mitochondria undergo degeneration, rupture, leakage which are the prime reasons for aging [33].

E. **Chronological aging:** Clinical manifestation of chronologically aged skin includes xerosis, laxity, wrinkles, slackness, and the appearance of a variety of benign neoplasms such as seborrheic keratosis and cherry angioma. Hair becomes depigmented, terminal hair converted to vellus hair; loss of hair is increased. There are changes in the nail plate. There is fewer gland singed skin [37]. These changes are in part the result of cumulative endogenous damage from the continuous formation of reactive oxygen species (ROS) generated during oxidative cell metabolism. Substantial evidence exists to support that aging is associated with, though more likely, the consequence of free radical damage by various endogenous ROS [38].

Extrinsic factors

It is an exogenous mechanism of aging due to-

Photo-Ageing the term photo-aging refers to the changes resulting from chronic sun exposure.

Photoaging

Chronic repetitive exposure of human skin to solar UV rays causes marked morphological, histological, biochemical, and biophysical changes that are described as photoaging. The clinical signs of photoaging are fine and coarse wrinkles, actinic keratoses, solar elastosis, yellowing, pigmentation disorders, and premalignant lesions, skin atrophy, senile purpura, freckles, solar comedones, telangiectasia, laxity, roughness, and extreme dryness [39]. UV damage can also cause significant changes in some of the mechanical properties of the stratum corneum, reducing its cell cohesion and mechanical integrity; the UV radiation also affects the molecular structure of cell proteins and lipids [40].

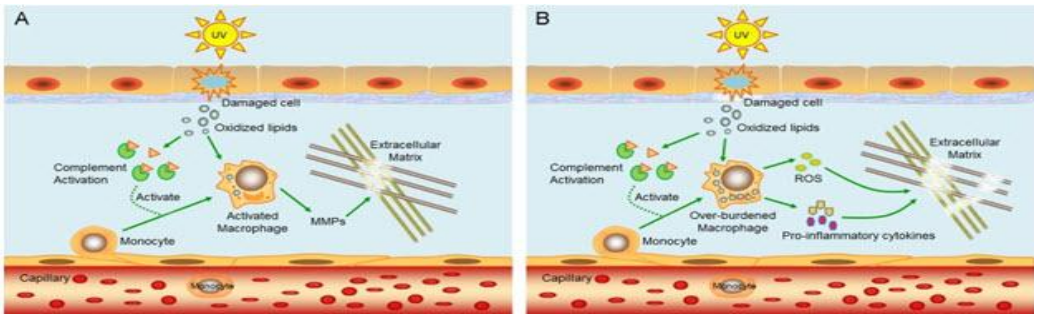

Figure No. 5: Photoaging mechanism

- UV radiation induces oxidative stress in epidermal cells, resulting in damaged cells with oxidized lipids. Oxidation-specific epitopes on damaged cells and oxidized lipids activate complement systems and cause inflammation, leading to infiltration and activation of macrophages. Activated macrophages release MMPs to degrade the extracellular matrix.

- (B) Repeated UV radiation over-activates the complement system, causing damage to the dermis–epidermis junction, on which they deposit, and macrophages are overburdened with oxidized lipids. Overburdened macrophages release proinflammatory cytokines and ROS, the former of which cause chronic inflammation and long-term damage to the dermis, while the latter triggers the oxidative stress-induced damages to the dermal extracellular matrix.

Table No. 1: Comparison of Intrinsic Aging and Photoaging [41], [42]

Feature	Intrinsic aging	Photoaging
Clinical appearance	Fine wrinkles, some deepening of skin surface markings, some loss of elasticity, redundant skin; Skin is smooth, unblemished, but shows a saggy appearance	Nodular, leathery surface sallow complexion, yellowish mottled pigmentation, coarse wrinkles, severe loss of elasticity, reddened appearance with initially light wrinkles, which later deepen, thus showing loss of collagen fibers
Epidermis	Thin and viable; Thinner than normal with lower cell growth, minor abnormalities in keratinocyte regularity; Normal stratum corneum There is the loss of rete pegs here as well	Marked acanthosis, cellular atypia; Thick skin, with acanthosis followed by atrophy of the cells; High basal keratinocyte irregularity; Stratum corneum appears compact; There is the loss of rete pegs here as well
Elastic tissue	Increased, but almost normal	Tremendous increase degenerates into an amorphous mass
Reticular dermis	Thinner, fibroblasts decreased, inactive mast cells decreased, no inflammation; Elastin fiber appear irregular in their arrangement, whereas collagen fiber begin to lower in number and thickness	Thickened, elastosis, fibroblasts increased, hyperactive mast cells; Excessive production of elastin fibers in an improper orientation, collagen fibers appear to thicken and then wear out soon; Appearance of grenz zone
Collagen	Bundles thick, disoriented	Marked decrease of bundles and fibers
Glycosaminoglycans	Slightly decreased	Markedly increased
Papillary dermis	No grenz zone	Solar elastosis with grenz zone,
Microvasculature	Moderate loss	A great loss, abnormal and telangiectatic

Other Factor affecting aging

Figure No. 6: Other factors affecting aging

Plants and their application for skincare

1. Neem

Biological source -*Azadirachta indica*

Family -Meliaceae

Chemical constituents -

Neem oil contains:

- A high level of antioxidants such as carotenoids-Essential fatty acids (EFA's) such as oleic acid, linoleic acid, palmitic acid, and stearic acid,
- Natural triglycerides Vitamin -E and Calcium, Anti-inflammatory compounds nimbidin and quercetin,
- Natural antimicrobial compounds-These ingredients pave the way for three main skin-care functions Anti-ageing, fighting acne, Calming dry skin conditions [43].

2.Hibiscus

Biological source- *Hibiscus rosa sinensis*

Family-Malvaceae [44].

Chemical constituents -

- Leaves and stems contain β-sitosterol, stigmasterol, taraxeryl acetate, and three cyclopropane compounds and their derivatives.
- Flowers contain: - cyanidindiglucoside, flavonoids and vitamins, thiamine, riboflavin, niacin and ascorbic acid
- Petals of Hibiscus rosasinensis: - have quercetin-3di-0-beta-D-glucoside, quercetin-3-7-di-0-beta-Deglucoside, quercetin-3-0-beta-D-sophorotrioside, kaempferol-3-0-beta-D-xylosyl-glucoside, cholesterol, campesterol, ß-sitosterol, catalase [45].

3. Bel

Biological source- *Aegle marmelos*

Family-Rutaceae [47,48].

Chemical constituents -

- Alkaloids:

The alkaloids comprise the largest single class of secondary plant substances. New alkaloids from leaves of Aegle marmelos were reported viz., ethyl cinnamamide, O- 3,3-(dimethylallyl) halfordinol, N-2-methoxy-2- [4-(3',3'- dimethyl allyloxy) phenyl] ethyl cinnamamide, etc.

- Terpenoids:

The essential oil of Aegle marmelos (L.) Correa leaves were studied very much extensively in India by various workers since 1950. α-Phellandrene was found to be the common constituent of the essential oil from leaves, twigs, and fruits. α-Phellandrene (56%) and p-cymene (17%) were reported from leaf oil. Later, a similar report was published on leaf essential oil by many workers. P-Menth-1-en-3,5-diol was isolated and characterized from Aegle marmelos leaves. Limonene (82.4%) was reported as the main constituent from Aegle

marmelos leaves and it was shown that limonene is a characteristic marker for the identification of Aegle marmelos oil samples.

- Coumarins:

Marmelosin, marmesin, imperatorin, marmin, alloimperatorin, methyl ether, xanthotoxol, scopoletin, scoparone, umbelliferone, psoralen, and marmelide have also been reported.

- Phenylpropanoids:

These are naturally occurring phenolic compounds, which have an aromatic ring to which the three-carbon side chain is attached. Among the phenylpropanoids are included hydroxycoumarins, phenylpropenes, and lignans. The most widespread plant coumarin is the parent compound, coumarin itself, which occurs in over twenty-seven plant families. Marmesin was established as a new compound from leaves, which is also a constituent of heartwood and root.

- Tannins:

The extreme tannin content in bael fruit was recorded in January. There is as much as 9% tannin in the pulp of wild fruits, less in cultivated type. Tannin is also present in leaves as skimmianine, it is also named as 4,7,8 - trimethoxyfuro- quinoline. Polysaccharides: Galactose, arabinose, uronic acid, and L- rhamanose are obtained on hydrolysis. Flavonoids: Mainly includes Rutin, Flavone, flavan-3-ols, flavone glycosides [49].

4. Papaya

Biological source -*Carica papaya Linn*

Family Caricacea

Chemical constituent

- It is a rich source of three powerful antioxidants, vitamin c, vitamin A, vitamin C.
- The minerals, magnesium & potassium vitamin B pantothenic acid & foliate & fiber
- It contains a digestive enzyme like papain, papaya proteinase, chymopapain. These ingredients pave the way for skincare function. moisturizing helps to reduce wrinkles Brightness your skin Removes dead skin cell. It's cruelty-free [50].

5. Lemon

Biological source- *Citrus Limon*

Family-Rutaceae

Chemical constituent-

- The juice of the lemon is about 5% to 6% citric acid. Lemon contains vitamin C, vitamin B1, vitamin B2, vitamin B3, vitamin B5, vitamin B6.
- Minerals like potassium, calcium, phosphorous, folate, magnesium, choline, iron, etc limonene is the primary element.
- Leaf oil was recognized with β-pine, myrcene, neral, geranial, neryl acetate, geranyl, and β-caryophyllene.
- Peel oil had μ-terpinine, β-pinene, myrcene. In lemon, there are certain flavonoids, like hesperidoside, lime citrine, in Spanish lemon pericarp.
- Citric acid, ascorbic acid, and caffeic acid in the lemon flower are the acids found in citrus.
- These ingredients pave the way for skincare lemon juice can get rid of dead skin cells, the theory is that it might also alleviate skin patches attributed to psoriasis and dandruff.
- The sloughing-off effects are attributed to lemon's natural levels of citric acid, as AHAs have exfoliating effects on the skin.[52].

6. Green tea

Biological source -*Camellia sinesis, Thea sinesis*

Family-Theaceae

Chemical constituent-

- Catechins (astringency component of tea), Epicatechin (EC), Epicatechin gallate (ECG), Epigallocatechin (EGC), Epigallocatechin-3-gallate (EGCG), Caffeine (bitterness)
- Vitamins: vitamin B2 & vitamin C, E, K, A.
- Amino acid: Theanine

- Minerals like zinc, copper, silver, bromium, phosphorous, chromium, aluminum. [54].

Table No. 2: Herbs role in anti-aging and anti -acne [44,46,49,51,53,55]

Herb	Role in anti-acne	Role in anti-aging
Neem 	Neem oil is anti-bacterial it is a more soothing way of killing the acne-causing bacteria. Neem oil contains aspirin-like substances that help calm inflammation and redness associated with acne. The aspirin-like substances also help kill the bacteria.	the high essential fatty acid levels ensure that the goodness is absorbed deep into the epidermal layers to fill in lines and deeply moisturize. It helps cell turnover and increases elasticity. Combined with the extremely effective antioxidant action of carotenoid and Vitamin E as well as moisturizing triglycerides, this oil is an anti-aging dream.
Hibiscus 	Hibiscus is rich in antioxidants, called anthocyanocides. Not only do anthocyanocides protect against free radical damage, but they also have slightly astringent properties, helping to reduce the appearance of large pores for a smoother complexion. They also have an anti-inflammatory effect and can help to soothe inflamed skin, making Hibiscus suitable for those prone to very sensitive skin	One of the most powerful anti-aging plant actives, Hibiscus has a magical reputation for increasing skin elasticity to give a stunning natural youth-boost. With the incredible ability to inhibit the activity of the enzyme elastase, which is responsible for breaking down our skin's precious elastin, Hibiscus actively combats the aging process by firming and lifting your skin. Antioxidants are proven to help fight skin-damaging free radicals which spawn when pollutants such as ultraviolet radiation and traffic pollution make contact with the skin and can result in premature skin aging.
Bel	Reducing the bacterial population of the hair follicles to cut down the hydrolysis of lipids (antimicrobial agents). Encouraging the shedding of the follicular horny plugs to free the obstruction (comedolytic agents).	

	Reducing the rate of sebum production, either directly by acting on the sebaceous glands (saprotrophic agents) or indirectly by inhibiting the effects of androgens on the sebaceous glands (anti-androgens). Reducing the damaging effects of acne inflammation on the skin with anti-inflammatory agents.	
Papaya 	The topical application can eliminate gastrointestinal irritation and avoid first-pass metabolism. The skin can lower the bioavailability of the an active substance so that it can reduce the antibacterial effect to the pathological site of acne.	The wide range of antioxidants in papaya helps to fight free radical damage and may delay signs of aging. Papaya also contains an enzyme called papain, which provides additional anti-aging benefits by working as one of nature's best anti-inflammatory agents. It's also found in many exfoliating products
Lemon 	Lemons have been shown to work well for acne patients with citric acid and C vitamin. Lemons also destroy many types of acne-causing types of bacteria as an alkaline fruit. Drinking citrus juice with water every morning is the simplest way for people with worse case acne to tap into these healing characteristics. It has been proven efficient that one portion of lemon juice is mixed with a portion of rose or melon water and placed on skin regions with acne.	Lemon has anti-aging properties as well, whether consumed or applied on the skin. It can be applied to the scalp to reduce dandruff, and give shine and volume to one's mane. Lemon juice rubbed onto the face and allowed to dry, can help get rid of blackheads and acne, and reduces wrinkles.

Green tea 	Acne is a common problem among teenagers and adults. Epigallocatechin-3-gallate (EGCG) polyphenol from green tea has also been suggested to be helpful in acne due to anti-inflammatory and antioxidant activity. The topical application of green tea for two weeks was effective in reducing sebum production and inflammation in the follicles.	Green tea fights skin cancer by promoting DNA repair. Green tea contains a powerful antioxidant called EGCG that fights DNA damage from UV rays to prevent skin cancer. That means it's also a potent anti-aging ingredient that combats signs of aging when ingested or applied topically.

FUTURE PROSPECTS

Now-a-days natural products are an integral part of human health care system, because there is popular concern over toxicity and resistance of modern drugs. India is one of the 12 leading biodiversity centers with presence of over 45,000 different plant species, 15000-18000 flowering plants, 23,000 fungi, 16,000 lichens, 18,000 bryophytes and 13 million marine organisms. From this flora, 15,000 to 20,000 have good medicinal value. Among those only about 7,000 plants are used in Ayurveda, 600 in Siddha, 700 in Unani and 30 in modern medicines [56].

At the moment, scientific research on medicinal plants is being carried out most intensely in research institutes, universities and pharmaceutical laboratories as well as in the clinics of many developed countries. Industrial Research (CSIR), New Delhi, is already involved in this field and validated about 350 formulations for different activities. This is a welcome trend

since it attempts to marry traditional practice with modern knowledge for the betterment of health24.WHO has emphasized the need to ensure the quality control of herbs and herbal formulations by using modern techniques. [57].

CONCLUSION:

The present review focuses on some common and available natural herbs. Indian herbs have been used for curing various ailments and which are highly potent for skincare purposes. These can be randomly used with various skincare formulations. Medicinal herbs are maintained skin integrity, enhancing its appearance and relieving skin conditions.

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