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SKIN AGING AND ANTI-AGING AGENTS: A REVIEW

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ABSTRACT

The skin is mostly a reflection of the natural process of ageing. Extrinsic and intrinsic ageing fall into two different groups. Extrinsic ageing results from lifestyle choices or environmental variables, but intrinsic ageing is caused by internal bodily processes. In the personal care industry, antiaging is a relatively new and widely accepted trend. Antiaging makeup contributes to improved appearance by minimising fine lines, wrinkles, and acne. Additionally, it enhances the appearance by affecting internal elements. These days, personal hygiene and cosmetics are used widely over the globe. Numerous emerging countries have undergone significant changes due to an ageing population and a recent shift in population composition. Anti-aging drugs have consequently drawn a lot of attention because it is believed to have a good effect on the risk factors of illnesses associated to ageing. Certain chemical cosmetics have unfavourable side effects. As a result, individuals favour using natural products as treatments for antiaging. The purpose of this article is to provide an overview of skin types, the mechanisms of ageing, and some natural antiaging agents that are used to cure ageing.

KEYWORDS: Skin, Cosmetics, Aging, Anti-Aging Cosmetics, Natural Anti-Aging Agent.

1. INTRODUCTION

An important indicator of age is skin appearance. The onset of withdrawing age has led to a surge in interest in cosmeceuticals, or anti-aging medications, and their alleged potential to improve an individual's more juvenile appearance. Anti-Aging Medicine is a class of preventive medicine that tries to improve older people's quality of life (QOL). Significant

strides have been achieved in the past ten years in comprehending the underlying mechanics of deadly skin ageing. This knowledge serves as the foundation for both the current application and future advancement of anti-aging therapies. The perfect anti-aging treatment should address birth systems that are known to lengthen lifespans as well as the ornamental preservation of an age-appropriate, healthy appearance, preventing the onset of degenerative disorders, and enhancing the function of the ageing brain and other organs. While the definition of anti-aging and the existence of effective anti-aging interventions remain hotly debated, there is more consensus regarding the variables that lead to birth ageing.[1] Collapsed fibroblasts in old skin result in low levels of collagen and large levels of enzymes that degrade collagen. This disproportion speeds up the ageing process in a cycle that is neither harmful nor immortalising. Skin tone can have a significant impact on an individual's aesthetic appeal. Tough or wrinkled skin can give the impression that you are ten years older than you actually are. Simultaneously, having supple and smooth skin can significantly enhance your appearance. This is the reason why taking care of your skin is crucial. While it may be too late for some to take preventative action, anti-aging skincare products can do wonders in turning back the clock.[2]

2. Skin

The skin, which covers the whole body, is the largest and outermost organ in the human body. It makes up around 15% of the overall weight of the body and is continuous with the mucous membrane that lines the outside of the body. It is made up of three layers: the epidermis, dermis, and hypodermis. The anatomical and functional characteristics of these layers differ greatly. The epidermis, which is the topmost layer of skin, has a thickness of roughly 75–150 mm. Stratum spinosum, stratum basale, stratum granulosum, and stratum corneum are its four sublayers. Dermis, a thick, fibrous tissue, makes up the second layer. It is 1.5–2.5 mm thick. Cutis is the collective term for the dermis and epidermis. Collagen, elastin, and reticulin are the three fibrous proteins that make up the dermis. Collagen aids in the production of fibroblasts, which replace dead skin cells. Body tissues can swell and contract thanks to elastin. Adipose cells known as the hypodermis or subcutis make up the third layer of tissue. It links the skin to the bones and muscles.[3, 4] The intricate network that makes up the skin serves as the body's main defence against viruses, UV rays, toxins, and mechanical trauma. It also controls the body's temperature and the amount of water that is expelled into the environment.[5] The skin serves as a sensory organ and shields the organism from chemical and mechanical harm. Furthermore, a person's skin plays a significant role in

their individual identity. It is intimately linked to their physical appearance, self-esteem, and self-consistency—basic self-concepts that govern their use of cosmetics, specific care products, and other aesthetic goods.

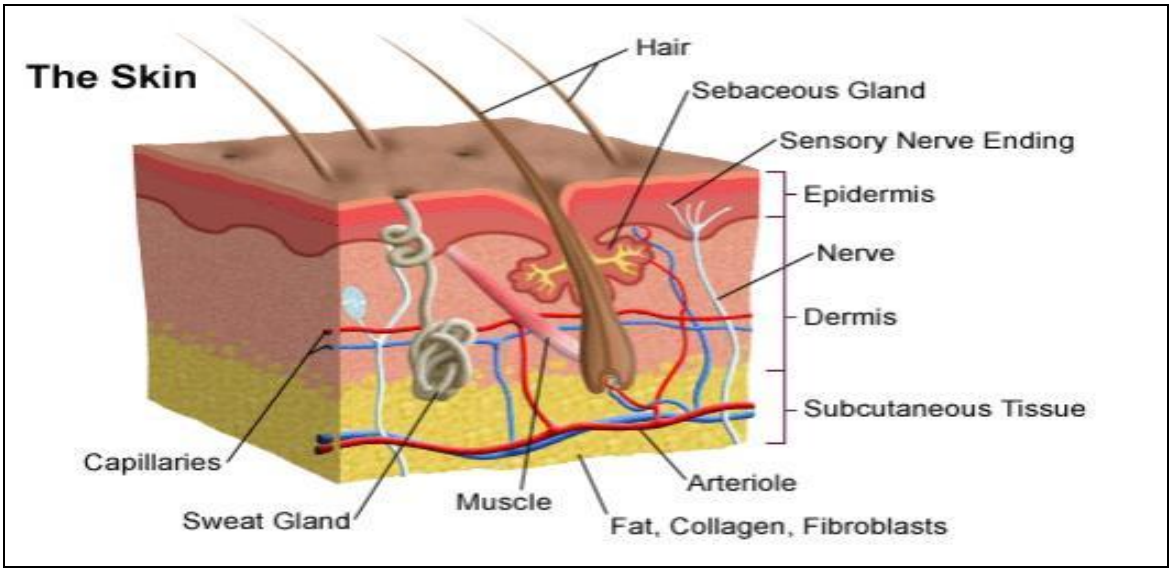

Figure 1: Anatomy of skin.

The following skin types exist.

a) Normal skin.

b) Oily skin.

c) Dry skin/humid skin.

d) Mixed/combination skin.

a) Normal skin: As a result of the cells in its outermost layers being cohesive, the skin is smooth and pleasant to the touch. Normal skin is uniformly transparent and has a fresh, rosy hue. The skin looks healthy.

b) Dry skin: Another name for it is xeroderma. Excessive water loss from the skin, a reduction in the natural moisturisers already present in the skin, and irregular stratum corneum function are the causes of dry skin. The skin's outermost layer may be cracked, itchy, scaling, or bleeding with this painful condition.[6]

c) Oily skin: A common skin condition known as oily skin, or seborrhoea, is brought on by the overproduction of sebum by enlarged sebaceous glands. The reticular dermis contains these glands. The oily appearance is primarily found on the "T zone," which is the forehead, nose, and jawbone. This area represents the dominance of these sebaceous follicles and looks glossy and greasy. It also contributes to the development of acne.[7]

d) Mixed skin: It relates to a complicated skin type in which many skin types previously mentioned affect various body or facial locations. The face is the typical example, where delicate skin with tiny grains on the cheeks can coexist with firm, velvety skin on the Croaker facial area and well-dilated pores.[1]

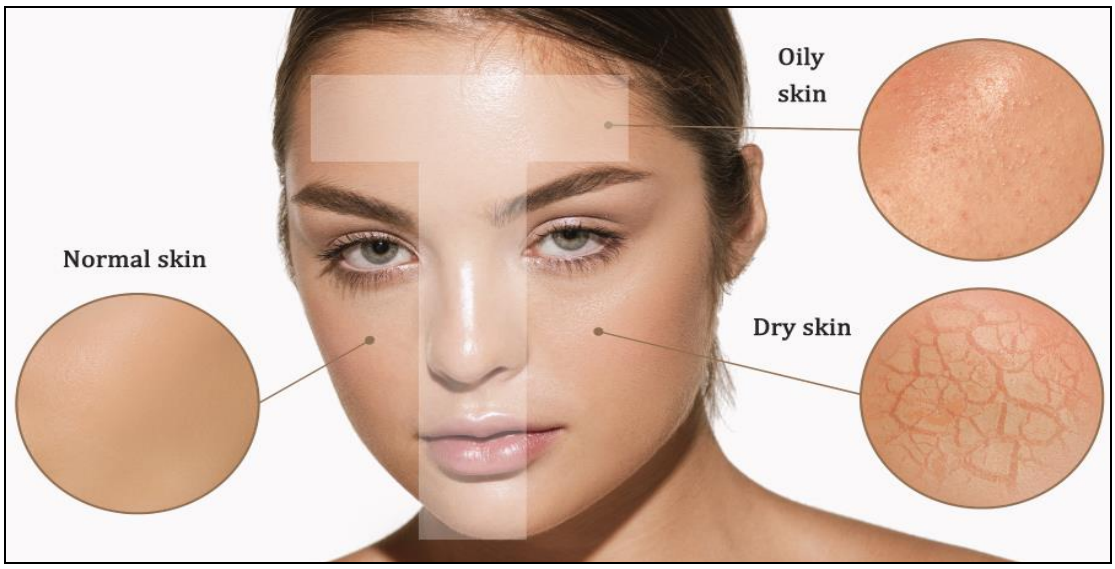

Figure 2: Types of skin.

3. Cosmetics: EU Regulation 1223/2009 states that "cosmeceuticals are defined as any substance or admixture of substances intended to be placed in contact with the teeth and the mucous membranes of the oral depression, or with the external region of the mortal body (epidermis, hair system, nails, lips, and external genital organs), essentially to draw attention to them, odorize them, perfect their appearance, protect them, maintain them in good condition, or correct body odours."[8, 9]

4. Aging

Ageing is a process that is marked by the accumulation of degenerative damage that ultimately results in the death of the organism. Graditional compression of homeodynamic space is ageing. It has historically been thought of as a "natural" and inevitable process.[10] Exogenous or foreign (chronic light exposure, pollution, ionising radiation, toxins, and poisons) and endogenous or intrinsic (genetics, cellular metabolism, hormones, and metabolic processes) elements interact to influence the complicated biological process of skin ageing.[11] Ageing of the skin is a natural, physiological, biochemical, and time-dependent process that results from a complicated exchange between foreign and natural substances that damages the skin's morphology, physiology, layers, and appearance over time.[12] The greatest risk factor

for many age-related illnesses, such as cancer, diabetes, stroke, and neurodegenerative complaints, is getting older. The persistent suffering of one or more aging-related conditions by the elderly places a heavy financial and social load on them. Although the focus of current medications is on treating specific complaints, it appears that those who are recovering from one complaint may soon have another.[10]

5. Types of aging

a) Intrinsic aging

True or chronological ageing, also known as intrinsic ageing, is a natural consequence of physiological changes that take place throughout time. In this instance, the inhibition is caused by individual genetics in addition to other factors that are also present but have a smaller impact. These days, it's thought that telomeres—small DNA sequences found at the ends of chromosomes—play a crucial role in the intrinsic or natural ageing process. When these structures are finished, cells' lives are prolonged. Telomerase can repair the shortening of these structures that happens with ageing as a result of ceaseless replication. The ageing process would be stopped by Telomerase's conservation of telomeres, yet this action may cause cancer. The intrinsic process, which causes fine wrinkles on the skin, happens over time.[13] The endogenous process of skin ageing is genuinely multifaceted, encompassing various ideas such as the inheritable gene theory, the free radical theory, the mitochondrial DNA damage theory, and more theories.[14]

b) Extrinsic aging

Extrinsic ageing is caused by modifiable factors and can be attributed to various degrees. These influences include exposure to sunlight, smoking, and gravity, in addition to other fundamental lifestyle choices like sleep, food, and general health. UV light, which is brought on by increased matrix metalloproteinase expression and causes photoaging of the skin, is the most significant external component in skin ageing. UV-induced free radicals lead to the breakdown of unsaturated lipids in the intercellular cement, holes in the skin's lipid membrane (which increases trans epidermal water loss), and structural alterations in collagen and elastins (the fibrillar proteins).[15]

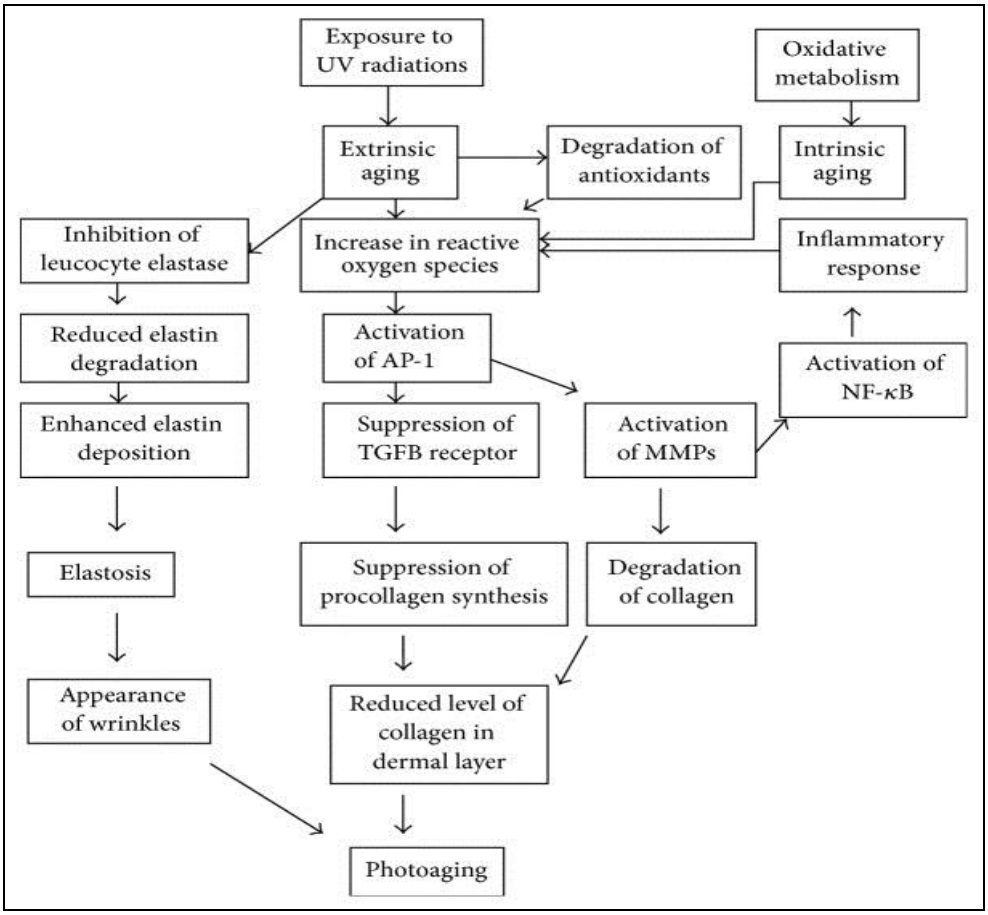

Figure 3: Mechanism of aging.

6. Anti-aging Cosmetics

Anti-aging cosmetics are essential to a person's existence since they give the skin a tremendous amount of radiance and moisture. The anti-aging ornamental product market in the cosmetics sector offers a wide range of products that contain antioxidants, such as vitamin C and E, to help slow down the skin's natural ageing process. "Means taken to decelerate, stop, or inhibits sensation related to ageing, as well as to increase life period" is how anti-aging drugs are described.[16] Many anti-aging medications are being developed nowadays that focus on the ageing mechanism. These include DNA methyltransferase and histone deacetylase inhibitors as epigenic regulators of gene expression, antioxidants, apparent cell reformers, sweet restriction mimetics, autophagy corrupters, and caloric restriction mimetics.[17]

Pharmaceutical and cosmetic businesses have significantly boosted their research and development of novel, safe, and efficient medications and treatment approaches to assist treat and alleviate diseases connected to skin ageing in recent times. Dermatologists now have

access to a variety of anti-aging techniques, but each has pros and cons. recently, methods for treating and preventing skin ageing were revised. These methods included systemic agents like antioxidants and hormone remedy, topical products with antioxidants and cell regulator parcels, correct sun protection, invasive procedures like chemical peelings, radiofrequency, injectable skin biostimulators, and paddings, and methods to limit or reduce the exogenous factors of ageing, similar to changing one's life and behaviour.[2]

7. Natural products as antiaging agents

300 substances have been shown to have antiaging properties. Comprising more than 180 natural supplements, 30 natural pharmaceuticals, and 50 complexes or extracts derived from natural materials.[18, 10]

7.1. Rapamycin: The macrolide rapamycin is derived from the actinomycete Streptomyces hygroscopicus found in soil samples from Easter Island. Rapamycin was first identified as a novel antifungal medication. Later, it was shown to exhibit immunosuppressive and anticancer properties by blocking the rapamycin mTOR molecular target. In 2003, it was shown that the TOR system is a critical regulator of ageing in Caenorhabditis elegans nematodes. The TOR pathway was later discovered to be expressed by Drosophila melanogaster fruit flies and Saccharomyces cerevisiae yeast. At first, rapamycin was proposed as a potential anti-aging therapy. In one trial, even when the medicine was taken at a very old age, male mice survived 9% longer and female mice lasted an astonishing 14% longer. Treatment with rapamycin increases the median and maximum lifespan of mice, both male and female. Numerous study teams' findings have shown that rapamycin lengthens the lifespan of different mice strains. Supplementing mice with rapamycin improved several age-related variables, such as pain perception, cardiovascular disease, muscle strength, immunological function, dental health, mitochondrial function, coordination and balance, and brain health. The growth, metabolism, and aging-related enzyme mTOR serine/threonine protein kinase is inhibited by rapamycin. It is a member of the PI3K (phosphatidyl 3 kinase) family.[17,19]

7.2. Astaxanthin (3, 3'-dihydroxy-beta, beta-carotene-4, 4'-dione): It is a member of the carotenoids' xanthophyll subclass. It is obtained naturally from fungi, bacteria, algae, flamingo feathers, and quail ratina.It exhibits a variety of therapeutic advantages and acts differently on cell membranes. The main source of natural astaxanthin is the single-celled algae Haematococcus pluvialis. Because they frequently produce more oxidative products

and have a higher likelihood of having polyunsaturated adipose acids in their plasma membranes, immune cells are particularly vulnerable to oxidative stress. Degradation of cell membranes, DNA, and proteins can result from an imbalance in the oxidant-antioxidant system caused by an excess of nitrogen and oxygen produced. Antioxidants are therefore used to keep the equilibrium between antioxidants and oxidants. Free radicals and other oxidants are neutralised by this chemical. The bulk of newly approved dietary supplements of astaxanthin with FDA approval contain H. Pluvialis extracts. Natural astaxanthin extracts often contain other carotenoids, such as canthaxanthin, beta-carotene, and lutein, which, depending on the source, have corresponding and comparable biological activity. Synthetic astaxanthin is a mixture of the isomers 3S, 30S, 3R, 30S, 3R, and 30R; it may also contain traces of impurities and residual solvents. Additionally, astaxanthin shields human LDL from oxidative damage. In smokers, overweight, and obese people, it reduces oxidative stress. By shielding mitochondria from endogenous oxygen radicals and boosting their ability to produce energy, astaxanthin functions as an antioxidant and has an anti-aging effect.[20,21]

7.3. Resveratrol (3, 5, 4′- trihydroxystilbene): it is a naturally occurring stilbene family molecule. It is produced from the skin of grapes, wine polyphenols found in berries (raspberry, blueberry, and mulberry), and inedible parts of peanut plants. It has flavonoids as well. Of the two isoforms, the trans-resveratrol isomer is more physiologically active and stable than the cis-resveratrol isomer. Resveratrol has demonstrated to be a powerful inhibitor of lipid peroxidation caused by UV light, NADPH, and adenosine 5′-diphosphate (ADP)-Fe+, in addition to being an efficient scavenger of 2, 2′-azobis-(2-amidinopropane)-dihydrochloride peroxyl radicals. Numerous studies have looked into the structure-activity relationship of stilbene derivatives, such as resveratrol. When Olas and Wachowicz looked at how resveratrol affected platelets, they discovered that the hydroxyl group in ring B was crucial in lowering lipid peroxidation, blocking the synthesis of reactive oxygen species, and stopping the oxidation of proteins and lipids in platelets caused by peroxynitrate. Resveratrol works through a number of pathways, such as angiogenesis, oxidative stress, inflammation, mitochondrial malfunction, apoptosis, and survival enhancement. Age-related ocular disorders are influenced by inflammation and oxidative stress at different stages of their development. In many cosmetics, it functions as an antioxidant. By influencing the cellular signalling system connected to UV-mediated photoaging, it inhibits photoaging. Teratogenic effects are shown by resveratrol. Therefore, it shouldn’t be done when pregnant.[22]

7.4. Curcumin [1, 7-bis (4-hydroxy-3-methoxyphenyl)-hepta-1, 6-diene-3, 5-Dione]

Curcumin, a polyphenolic natural compound derived from Curcuma longa Linn, has various natural and pharmacological activities, such as antioxidant, immunomodulatory, anti-inflammatory, anti-microbial, cardio-defensive, nephro-defensive, hepatoprotective, anti-neoplastic, anti-rheumatic, and anti-aging effect. Its chemical formula is C12H20O6. Oxidative stress is a significant hallmark of ageing and is thought to be a crucial component of the pathogenesis pathways of numerous age-related conditions as well as the disorder status. Oxidative stress is caused by an imbalance between the production of reactive oxygen species (ROS) and the capacity of biological products to detoxify those reactive agents. Due to their strong antioxidant qualities, curcumin and its derivatives can effectively reduce oxidative stress and ageing caused by free radicals. Curcumin belongs to the group of hormetic drugs that increase HO-1 expression and stabilise Nrf2. Curcumin activates the Nrf2 pathway, which plays a crucial role in activating antioxidant enzymes like HSP70, Sirtuins, and thioredoxin reductase. Additionally, it increases catalase and superoxide dismutase activity. These enzymes, known as antioxidants, exhibit a defence mechanism against free radicals generated by metabolic processes. Curcumin thus has a delayed ageing effect.[23]

7.5. Nordihydroguaiaretic acid (NDGA): The leaves of the creosote bush (larrea divaricata or corillea tridentate) are the natural source of lignans. The fact that NDGA scavenges singlet oxygen, peroxynitrite, superoxide anion, and hydroxyl radical suggests that it may have antioxidant properties. Two signs of ageing are dysregulation of nutrition sensing and epigenetic modifications. Higher levels of acetyl-CoA are linked to age-related changes in histone acetylation in ageing animals, and calorie restriction significantly lowers acetyl-CoA levels even before it affects cellular ATP, NADH, or amino acid levels. As the exclusive source of acetyl groups for protein acetylation, acetyl-CoA has a major effect on the activity of acetyltransferases at the cellular level. Histone and nonhistone acetyltransferase p300 (E1A-associated protein p300) is a molecular sensor of changes in cellular and possibly other acyl-CoA levels. Any decrease in cellular acetyl-CoA significantly limits the activity of p300 and slows down subsequent acetylation events involving critical cellular proteins. Notably, p300 acetylates autophagy-related proteins such LC3, Atg5, Atg7, and Atg12 to effectively suppress autophagy. By modifying the nuclear factor erythroid 2-affiliated factor 2 (Nrf2)/antioxidant response element (ARE) antioxidant pathway in vivo, NDGA demonstrates cytoprotective effects. NDGA suppresses the acylation of p300 Target in the cell's histones, limits the action of the epigenic regulator p300 acetyltransferase, and prevents

autophagy. Because of these diverse effects, NDGA is a promising research subject for ageing and geroprotective mechanisms.[24]

7.6. Retinoids: Because of its anti-aging qualities, retinol is a primary ingredient in the majority of cosmetics. It contains both synthetic and natural variants of vitamin A that block the enzyme responsible for breaking down the skin's collagen and reduce melasma. The 20-carbon molecule known as retinol has an alcohol end group, a side chain with four double bonds, and a cyclohexane ring. Retinal is created when retinol is oxidised at the alcohol end group. Retinal is then further oxidised to make tretinoin. The most popular retinoid for treating photoaging is trentinoin. Tretinoin also prevented AP-1 and NF-kB, two nuclear transcription factors, from being activated by UV light. The breakdown of collagen‑1, 7, 8—the fibril-forming collagen—continues to lead to the fragmentation and coarse distribution of collagen fibrils in old skin, as well as a rise in the relative proportion of collagen‑3. Aged skin experiences a progressive breakdown of the extracellular matrix (ECM), which impairs dermal fibroblast attachment and causes senescence and diminished size. This counteracts the natural activity of fibroblasts, which is to release matrix proteins like collagen, elastin, and proteoglycans after being activated by different cytokines like TGF-β11 when endogenous ligands are present.[25,26]

7.7. Sappanone A: This homoisoflavonoid, derived from Caesalpinia sappan L., has been shown to have anti-aging properties when investigated on Caenorhabditis elegans, a model of longevity and ageing that has morphological and functional biological ageing similarities with humans and mammals. According to reports, research has been done on sappanone A's potential pharmacological mechanism as well as its potential life-extending and medicinal effects in Caenorhabditis elegans. After the larvae were treated with 0–50 M sappanone A, measurements were made of their locomotors capacity, feeding capacity, reproductive capacity, heat resistance, lipofuscin content, ROS accumulation, and other markers of their health status to see how sappanone A affected the larvae's longevity. The transcription of the insulin/insulin-like growth factor-1 signalling pathway and the heat stress response gene was analysed using RT-QPCR in order to look into the possible mechanism. Inosine monophosphate dehydrogenase 2 (IMPDH2), an oncogene implicated in the activation of the PI3K/AKT/mTOR and PI3K/AKT/FOXO1 pathways to cauliflower and cheeses, was extensively targeted by SA and rendered inactive. Ageing and cell cycle regulation can be

found in soy-based items such as durian, shiitake mushrooms, and natto. This research indicates that sappanone A contributes to the anti-aging effect.[17,18]

7.8. Ursolic acid (3β-hydroxy-urs-12-en-28-oic-acid): It is a pentacyclic triterpinoid that is derived from flowers, leaves, fruits, and herbs. It has a wide range of pharmacological properties, including anti-inflammatory, anti-ulcer, antibacterial, anti-hyperlipidemic, and cardiovascular. Ceramide content and hydroxyceramide content in human skin are increased by ursolic acid liposomes. Ceramide is crucial to the stratum corneum's ability to bind water. The epidermal permeability barrier plays a crucial role in human physical, chemical, and biological cutaneous functioning. Reduced ceramide levels and impaired barrier function are associated with sensitive skin. It is also linked to enhanced penetrability, irritability sensitivity, and transepidermal water loss. Atopic dermatitis affects the operation of the epidermal permeability barrier, the body's ability to retain water, and the amounts of ceramides. UA is a great moisturiser that leaves skin feeling silky and smooth. Development of keratinocytes is usually induced concurrently with ceramide synthesis. By boosting the synthesis of the genes involucrin, loricrin, and filaggrin required for terminal keratinocyte differentiation, ursolic acid enhances the restoration of epidermal barrier function. UA has similar effects to retinoids on human keratinocytes; however, UA stimulates ceramide production, whilst retinoids diminish it. As we age, our levels of stratum corneum ceramide and dermal collagen decrease, leading to xerosis and wrinkles in our skin. In cultured normal human dermal fibroblasts and epidermal keratinocytes, UA increases the levels of ceramide and collagen, respectively. Because UA promotes the growth of muscles, reduces fat accumulation, and enhances the skin's epidermal permeability barrier, it has been recommended as a skin-curative agent and is utilised in cosmetics. Clinical research confirmed the beneficial effects of ursolic acid, including decreased transepidermal water loss, enhanced skin moisturization, decreased scaluness, and better skin plasticity.[27]

7.9. Spermidine

Spermidine is the most common polyamine in numerous human tissues, and as people age, their bodies naturally produce less intracellular spermidine. Significant amounts of spermidine are present in sperm, which prevents cellular senescence and increases the long-term viability of the germ cell line. The homeostasis of spermidine is influenced by dietary consumption, intestinal microbiota, endogenous synthesis, breakdown, and intercellular

transport systems. Significant amounts of spermidine can be found in a variety of foods, such as broccoli, wheat germ, and fresh peppers.[28]

Spermidine is a mimic of calorie restriction that exhibits strong cardioprotective and neuroprotective benefits as well as promoting anti-tumour immunosurveillance in rat models. Furthermore, diets rich in polyamines have been associated with lower rates of death from cancer and cardiovascular disease in human epidemiological surveys. Spermidine has anti-inflammatory qualities, maintains mitochondrial function, and prevents the ageing of stem cells. Its method of action is similar to that of other calorie-restriction mimics, based on triggering protein deacetylation and autophagy.[29]

7.10. Urolithins

The beaver odour gland yields urolithins, a subtype of 3, 4-benzo coumarins. Numerous plants, microorganisms, and waste products from humans and animals contain them. In the last ten years, urolithins have garnered a lot of interest from scientists. Thus far, research has demonstrated that urolithins can reduce tissue damage and regulate oxidative stress through a variety of ways. Urolithin A (10) has been shown in recent research to greatly increase the expression of type I collagen and decrease matrix metalloproteinase 1 expression. After administering 20 and 50 μm urolithin A, there was a discernible rise in the expression of collagen mRNA and a dose-dependent reduction in the expression of MMP1 mRNA. Urolithins are metabolites produced in the intestines by foods high in ellagitannin, such as blackberries, strawberries, pomegranates, tea, walnuts, and raspberries. Due to urolithins' numerous biological functions, which include anti-aging, anti-cancer, anti-inflammatory, and cardiovascular protection, their profile has grown in recent years.[30]

Table no 1: Natural antiaging agents.

Sr. No	Antiaging Agents	Class	Sources	MOA	Therapeutic effects
1.	astaxanthin	Xanthophyll	Obtained from algae, bacteria, fungi, flamingo's feather, quill's retina.	Neutralizes free radicals and oxidants, decreases oxidative stress.	Anti-aging, antioxidant, anicancer, antiinflammatory
2.	Resveratrol	Stilbene	Obtained from grapes skin, berries, nonedible part of peanut plant	Inhabits lipid peroxidation and production of ROS	Antiaging, Decrease inflammation, apoptosis, mitochondrial dysfunction, eye related disease
3.	Curcumin	Polyphenol	Obtained from curcuma	Triggers Nrf2	Antiaging, antiwrinkle,

			longa Linn	pathway, stimulates superoxide dismutase and catalase	anti-inflammatory, antimicrobial, antineoplastic, antirheumatic, cardiodefensive
4.	Rapamycin	Macrolide	Obtained from Streptomyces hygroscopicus.	Inhibits mTOR serine/threonine protein kinase	Antiaging, antifungal, anticancer, immunosuppressive agent
5.	NDGA	Lignans	From the creosote shrub's leaves (corillea tridentate or larrea divaricata)	Inhibits p300 acetyltransferase activity	Antiaging, antioxidant
6.	Retinoids	Vitamers of vitamin-A	Beef, calf and chicken liver, dairy products, fish liver oil, red and orange vegetables and fruits.	Blocks UV induced activation of nuclear transcription factor AP-1and NFkB.	Anti-aging, antiwrinkle, antiacne, psoriasis, Anti-inflammatory, skin cancer treatment.
7.	Sappanone A	Homoisoflavonoid	Obtained from caesalpinia sappan Linn.	Targets and inactive oncogene,ionosine monophosphate dehydrogenase 2 (IMPDH2)	Antiaging, antidiarrheal, antifiabetic, blood stasis treatment.
8.	Ursolic acid	Pentacyclic triterpinoid	Obtained from herbs, fruits, leaves and flowers of various plant species	Increases ceramide content and hydroxyceramides leads to increase skin moisturization	Antioxidants, antiaging, antiulcer gastroprotective, antimicrobial,antihyperlipidemic agent
9.	Spermidine	Polyamine	From nutritional intake of fresh peppers, wheat germ, broccoli, cauliflower, cheese and mushroom	Relaying on autophagy and induces protein deacetylation	Antiaging, cardioprotective, neuroprotective, anti-inflammatory agent
10.	Urolithins	Coumarins	Isolated from beaver odour gland, black berries, strawberry, tea, walnuts, pomengrates	Increases expression of type 1 collagen and decreases expression of metalloproteinase 1	Antiaging Cardiovascular protection, anti-inflammatory, anticancer, antidiabetic agent

8. CONCLUSION

In today's society, everyone aspires to appear and feel better. This article looked at natural anti-aging products that make people look younger. Anti-aging products are therefore becoming more and more well-liked. The benefits of anti-aging ingredients are combined with sophisticated skin tones and cosmetic delivery techniques in a new line of cosmetics termed "antiaging." To maintain and enhance human beauty, antioxidants, anti-cellulite, and anti-microbial treatments have all been employed. Creams not only moisturise and lubricate the skin, but they also provide amazing protection from the sun and wind. If you rub the

cream off immediately after application, it can also aid in removing dirt from the skin's surface. In summary, the right ingredients in the right potions for postponing the ageing process include keeping a healthy weight, giving up smoking, shielding yourself from the sun, eating a balanced diet, exercising frequently, and cultivating socially and coping skills that are reinforced by good eating habits. For biogerontology, an exciting and rapid phase of progress is commencing. There is a great lot of promise for future pharmaceutical therapies to slow down the ageing process. The aforementioned article's goal is to investigate several anti-aging substances, including ursolic acid, spermidine, urolithin, astaxanthin, curcumin, retinoids, sappanone A, NDGA, and rapamycin. As a new era of anti-aging drug development begins, the scientific community will need to keep a careful eye on the timely synthesis of naturally occurring agents that can delay the ageing process, either alone or as several agents (polypill).

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