

Utilization, Unmet Need and Challenges to Control of Skin Aging By Herbal Cosmetics: A Comprehensive Review

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Abstract

India is a concentration for advancement of Ayurveda, Unani, Siddha, Homeopathy and another regular spices based wellbeing science (AYUSH). Ayush Pharmaceutical industry having incredible conceivable and possibility for saundarya prasadka class (natural corrective) improvement in future. The role of Indian spices in natural beauty care products is notable all through the world. Magnificence and cosmetics are pretty much as old as mankind and society itself. Therefore, ladies with spices utilize different magnificence things to seem alluring, and young ladies and men likewise are intrigued with looking appealing. Home grown beauty care products are delegated magnificence items containing natural fixings that have physiological advantages like relieving, smoothing, improving, and molding. Home grown beauty care products are an inestimable gift from nature that is turning out to be progressively normal on the worldwide market. There has been a great deal of concern with respect to home grown details, which have an elevated degree of movement and for all intents and purposes no after effects when contrasted with manufactured drugs.

Many plants are accessible normally also as various purposes that can be made as essential elements for corrective arrangements, for example, onion dayak bulb, kemuning leaf, pegagan, kecombrang, red betel, walnut, and sweet root. The illustrious royal residences in India utilized an assortment of spices to work on sexy allure and keep up with general cleanliness. Rack stable natural plans, for example, home grown face wash, cleanser, conditioner, cleanser, and such, are regularly made and utilized every day. Before long, the business is zeroing in on the developing business sector, which has a huge scope of conceivable development.

Skin is the biggest organ and goes about as the primary line of safeguard of our body. After a specific timeframe, our skin misfortunes its complexion and flexibility that we called maturing. Skin maturing is the consequence of customized senescence and delayed ecological injury to the skin. Skin maturing can be constrained by the utilization of cancer prevention agents and free extreme scroungers. These days, the meaning of herbals and natural items is acquiring around the world. The interest of natural medication is expanding quickly because of their skin agreeableness, minimal expense, and absence of incidental effects. Plants have potential exercises, for example, hostile to maturing, against wrinkle, cell reinforcement, mitigating, and skin brightening exercises. The point of this survey article is to give data in regards to the control of skin maturing by cancer prevention agent rich home grown drugs.

Date of Submission: 01-06-2022

Date of acceptance: 13-06-2022

I. Introduction

The word restorative was gotten from the Greek word "kosm tikos" significance having the power, orchestrate, expertise in adorning [1]. The beginning of beauty care products frames a nonstop story over the course of man as they created.

Restorative comes from the Greek word "cosmtikos," and that signifies "enliven, arrange, and improve" [2]. Man utilized tones to draw in the animals he needed to chase in ancient times (3000BC), and he even endure a foe assault by shading his skin and decorating his body for assurance, ingraining dread in his enemy (whether man or creature) [3]. Hunting, battle, religion, and odd notion all assumed a part in the improvement of beauty care products and, later, medication [4]. Natural beauty care products items contain fixings that are legal corrective fixings utilized in definition to foster a particular mix of helpful restorative properties that are comprised of at least one spices [5].

Individuals' skin and hair still up in the air by their wellness, propensities, everyday work, ecological circumstances, as well as upkeep [6]. Since the skin is got dried out in the late spring because of exorbitant hotness openness, wrinkles, spots, flaws, pigmentation, and sun related burns are conceivable. During very cruel winters, the skin supports harm like dried lips, cuts, swelling, maceration, as well as contamination [7]. Indeed, even individuals of any age are powerless to skin illnesses, which can be brought about by microscopic organisms, substance specialists, or natural poisons in the water [8, 9]. Many plants are accessible normally too

as various purposes that can be made as essential elements for restorative arrangements, for example, onion dayak bulb, kemuning leaf, pegagan, kecombrang, red betel, walnut, and sweet root.

The study of Ayurveda had used numerous spices and verdures to make beauty care products for beautification and insurance from outer effects. The inherent substance in the botanicals causes no incidental effects on the human body; rather enhance the body with supplements and other helpful minerals. The beauty care products, as indicated by the Drugs and Cosmetics Act is characterized as articles expected to be scoured, poured, sprinkled or splashed on, acquainted into or in any case applied with the human body or any part for purging, improving, advancing allure or changing the appearance. The corrective doesn't go under the see of medication permit [10]. The substance of dynamic synthetic mixtures in plants are alkaloid, flavonoid, terpenoid, steroid, tannin, and saponin which still up in the air by phytochemical screening [11].

Significant Categories of Herbal Cosmetics [12]:

- Beauty care products for further developing facial skin appearance
- Beauty care products for hair development and care
- Beauty care products for healthy skin, particularly in teenager [13, 14] (skin inflammation, pimples and maintaining)
- Shampoos, cleansers, powders and perfumery, and so forth
- Miscellaneous compounds
- Safeguarding the body against injury
- Directing internal heat level
- Detecting difficult and lovely stimuli [15]
- Produces Vitamin D
- Retains certain drugs [16]
- Discharge of metabolic wastes [17]
- Keeps up with homeostasis
- Against Dandruff Solutions
- Lip Care and Rejuvenation Products
- Hair Fall Solutions

Examples of Active Ingredients in Cosmeceuticals:

As the cosmeceuticals items has beauty care products as well as drug impact. Cosmeceuticals for the most part contain dynamic fixings that impact the skin. Here is some illustration of active ingredients in cosmeceutical items.

- Antioxidant prevention agents, like L-ascorbic acid, a cell reinforcement when added to a skincare item.
- Organic Extracts from Plants and oils got from blossoms, spices, seeds, nuts, roots, and berries
- Marine Extracts, ocean green growth, kelp, marine green growth, and miniature green growth
- Peptides can give huge enemy of maturing benefits when utilized in skincare items
- Depigmenting specialists that assist with easing up the skin and lose skin color
- UV Protection that offers sun assurance
- Exfoliants assist remove with dead cleaning and external layers of thickened skin, empowering skin turnover.
- Alpha Hydroxy Acids mellow fine kinks, ease up pigmentation spots, fix and further develop skin surface.

Benefits of Herbal Cosmetics over Synthetic [18]

Natural beauty care products are the advanced pattern in the field of magnificence and design. These specialists are acquiring prominence as these days most ladies lean toward regular items over synthetics for their own consideration to improve their excellence as these items supply the body with supplements and upgrade wellbeing and give fulfillment as these are liberated from engineered synthetic substances and have moderately less aftereffects contrasted with the manufactured beauty care products.

Types of skin aging

Intrinsic aging

The natural cycle happens through the progression of time [19] characteristic maturing is likewise called ordered maturing or endogenous maturing. It is affected by your body's numerous inward cycles, including:

- Hereditary variables
- Cell digestion
- Hormonal changes [20].

Inside the skin, collagen creation dials back and elastin has a piece less spring. Dead skin cells don't shed as fast and turnover of new skin cells might diminish somewhat [21]. Basically characteristic skin maturing must be

seen in very advanced age and is portrayed by unsullied, smooth, pale(r), drier, and less versatile skin with fine kinks [22].

Extrinsic aging

Outward skin maturing is superimposed on inherent skin maturing process [23]. Extraneous maturing is frequently alluded to as photoaging. Photo damage suggests changes past those related with maturing alone, characterized as cutaneous harm brought about by constant openness to sun based radiation and is related with the rise of neoplastic injuries [24]. Outward factors are, to changing degrees, controllable and incorporate openness to daylight, contamination or nicotine, dreary muscle developments, for example, squinting or grimacing and incidental way of life parts like eating routine, dozing position, and generally wellbeing [25].

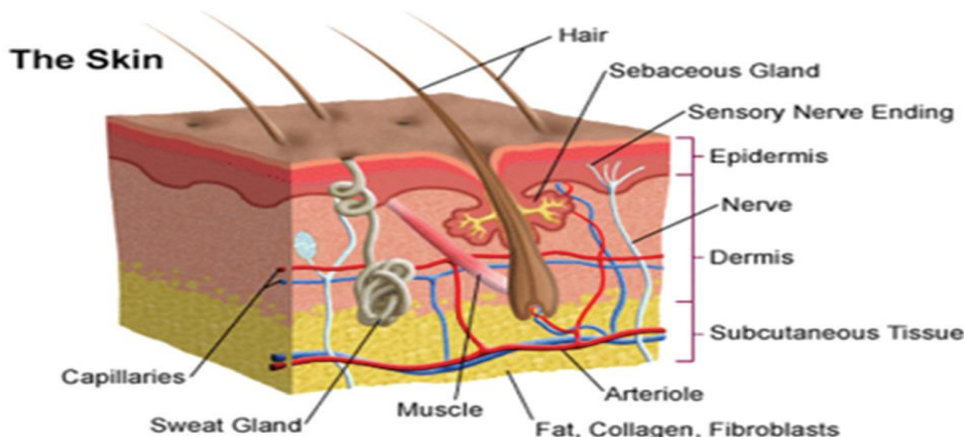


Figure 1: Structure of skin [26]

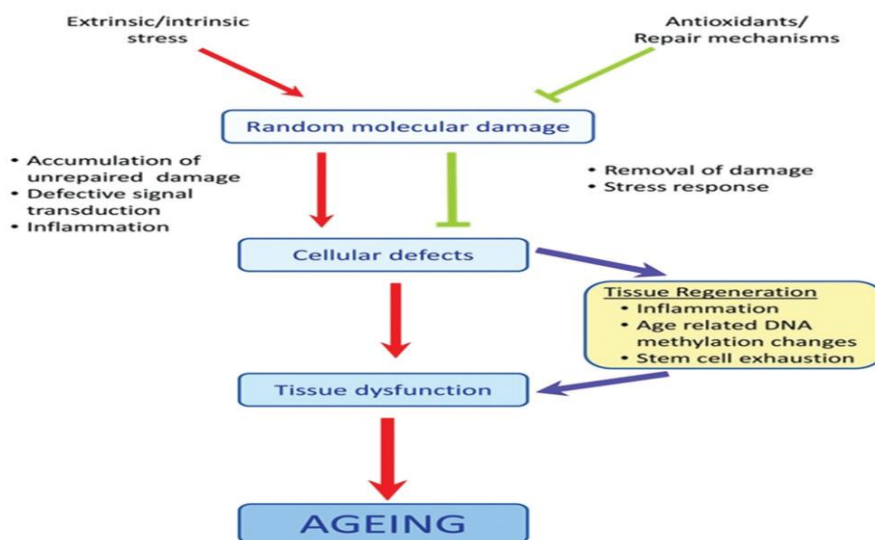


Figure 2: Mechanism of skin aging [26]

Cosmeceuticals

Cosmeceuticals satisfy a significant psycho-social organic need of people in having a decent outlook on themselves and in attempting to keep up with the underlying and utilitarian trustworthiness of the body [27]. Cosmeceuticals are the restorative items having organically dynamic fixings which have clinical or drug-like advantages [28]. Cosmeceuticals dynamic fixings are continually being created by of all shapes and sizes companies occupied with drugs, biotechnology, normal items, and beauty care products, while progresses in the field and information on skin science and pharmacology have worked with the restorative business' advancement of novel dynamic mixtures all the more quickly [29]. Cosmeceutical details currently have extended from skin to body to hair, and various skin cosmeceutical medicines for conditions, for example, photoaging, hyperpigmentation, kinks, and hair harm have come into far reaching use [30]. Cosmeceuticals fixings should be protected, effectual, novel, stable, and cheap to make and can be used inside the skin [31].

Cosmeceuticals are by and large introduced as moisturizers or creams and are for the most part designated at dermatological issues [32].

Antioxidants

Antioxidant agents are normal substances comprised of nutrients and minerals [33]. Cancer prevention agents are particles that can kill free revolutionaries by tolerating or giving an electron to wipe out the unpaired condition [34]. The utilization of cell reinforcements can likewise be viewed as significant for keeping up with the dependability of the definitions. The aroma and shade of a corrective item are unequivocal elements in the item acknowledgment by buyers. Hence, the insurance of lipid oxidation is significant, since numerous items have restricted time span of usability because of oxidation of the excipients, which might bring about adjustment of their aroma and shading [35].

Antioxidants kill harming free extremists consequently safeguarding cells from both.

- Endogenous pressure side-effects of cell energy.
 - Exogenous stressors-UV light, contamination, and tobacco smoke.
- Cell reinforcements involved a gathering of different atoms including (yet not restricted to).
- Coenzyme Q-10 (Co Q-10).
 - Idebenone.
 - Polyphenols.
 - Alpha lipoic corrosive (ALA).
 - Nutrients (A, B, C, and E) [36].

Table: Role of active ingredients in skin aging:-

Tocopherol	Vitamin E ties free revolutionaries and forestalls their damaging activity on lipids, cells, and cell films. Vitamin E advances the organic dependability of the cells and smoothest and fortifies the skin. It has additionally saturating properties
Vitamin-A	Vitamin A is liable for the typical surface and working of skin and different tissues. It actuates the regular recovery of dermal tissue and works on its flexibility. It balances unreasonable cornification of the skin. Postpones arrangement of untimely crinkles [37].
Vitamin-C	L-ascorbic acid gives many advantages to the skin most altogether, expanded blend of collagen and photoprotection. Photoprotection permits the skin to address the past photodamage, the blend of collagen and restraint of MMP 1 was demonstrated to diminish wrinkles, and the hindrance of tyrosinase and calming movement bring about depigmenting sun oriented lentigines [38].
Grape seeds extract	Vitis vinifera grape seed extricate is accounted for to work as hostile to caries specialist, antidandruff, antifungal, antimicrobial, cell reinforcement, enhancing, light stabilizer, and sunscreen specialist. The grape seed hydroethanolic remove is rich in polyphenols (proanthocyanidins). The cancer prevention agent and rummaging exercises of proanthocyanidins had been accounted for [39].
Carotenoids	Beta carotenes are normally alluded to as "sun protectants" that is, his capacity in forestalling UV radiations harm of the human skin. UV light delivers the human skin to photograph oxidative harm due to the arrangement of ROS like singlet oxygen, peroxy, and superoxide extremists. ROS have a harm impact on the DNA, proteins, and lipids and are known to be a reason for erythema, skin maturing, and malignant growth [40].
Phenolics compounds	The cell reinforcement movement of phenolics is conceivable through different components of activity: Inhibition of the ROS arrangement and the ROS catching and the elimination of singlet oxygen; and decreasing the chelated metal particles intruding on the course of free extreme responses in lipid peroxidation and safeguarding different mixtures with cancer prevention agent action [42].
Niacinamide	Strong cell reinforcement, this substance is connected with Vitamin B 3 (niacin). It decreases water misfortune in the skin and may further develop skin flexibility
NAG	A straightforward amino sugar and supplement assumes a part in framing and keeping up with the body's tissues and huge expansions in both hyaluronic corrosive and collagen. Topically applied NAG further develops skin moisturization as well as the presence of scarcely discernible differences/wrinkles [43].
Tea extract	Polyphenols in tea removes are profoundly successful at diminishing the irritation and oxidative pressure that can annihilate the strength of your skin cells. Tea contains catechins, an extremely strong gathering of water dissolvable polyphenol cancer prevention agents that are effectively oxidized. Green tea, which is fabricated from new, unfermented tea leaves in which oxidation is negligible, has catechins present in critical amounts [44].

Significance and value of topic

Currently numerous items are utilized in treatment of skin related issues yet it prompts different incidental effects .So natural beauty care products is the best elective treatment then the others. Natural items help as against maturing and furthermore help in upkeep Homeostasis. It additionally assists with working on cell digestion and Hormonal changes. We intend to further develop atomic harm capacities.

The capacity to want the right beauty care products for you relies upon precise fixing information, body Prakriti appraisal, individual necessities, client discernment about item, benchmark item. Quality control for capacity and security of natural restorative items is of transcendent significance. So quality control test should be completed for home grown beauty care products. It is thought to be ok for longer timeframes [45].

Roughly 70% of the Indian populace involves natural beauty care products for medical services. In everyday use, ordinarily planned natural beauty care products incorporate home grown face wash, conditioner, cleanser, and cleanser. Before very long, the business will move their concentration towards an enormous section with the chance for extraordinary complex development [46], local natural plants, for example, dayak onion bulb, kemuning leaf, kecombrang, red betel, kemiri, akar manis, and so forth which can be planned into different classifications of corrective arrangements, for example, cancer prevention agents, against maturing, lip tone, fluid shower cleanser, hair and skin health management as per their substance of phytochemicals substances [47], leaves concentrate of Aloe vera in fluid cleanser plans against a few pathogenic microorganisms. The fluid cleanser readiness of Aloe vera leaf separate has movement as antibacterial to Gram-positive microbes (*S. Aureus*, *B. Subtilis*, and *B. Cereus*) and Gram-negative microbes (*S. Typhi*, *P. Mirabilis*, *P. Aeruginosa*, and *E. Coli*) [48].

The home grown corrective items are the most ideal choice to diminish skin issues, for example, hyperpigmentation, skin wrinkling, and skin maturing. The interest of natural corrective is quickly extending, nutrients (Vitamin C and Vitamin E), flavonoids, and phenolic acids assume the primary part in battling against free extremist [49]. Plants have potential exercises, for example, against maturing, hostile to wrinkle, cell reinforcement, calming, and skin brightening exercises. Skin plays out a wide assortment of capacities coming about because of synthetic and actual responses inside these parts [50].

Aim and Objectives:-

Aim: Utilization, Unmet Need and Challenges to Control of Skin Aging by Herbal Cosmetics: A Comprehensive Review

Objectives:-

1. Preliminary phytochemical investigation of different extract of the plant.
2. To nourish and beauty the skin.
3. To prevent aging of skin.

Herbs Used in Cosmetics/Cosmeceuticals:

There are various spices accessible normally having various purposes in surface level arrangements for skincare, hair care and as cell reinforcements, fragrant and so on A portion of the significant models are as per the following:

Skincare

Coconut oil: It is delivered by pounding copra, the dried part, which contains around 60-65% of the oil. Coconut oil contains a high measure of glycerides of lower chain unsaturated fats. Coconut oil is gotten from the natural product or seed of the coconut palm tree *Cocos nucifera*, family Arecaceae. The dissolving point of coconut oil is 24 to 25°C (75-76°F) and in this manner can be utilized effectively in fluid or strong structures and is regularly utilized in cooking and baking. Coconut oil is incredible as a skin lotion and conditioner.



Sunflower oil: It is the non-unstable oil separated from sunflower seeds got from *Helianthus annuus*, family Asteraceae. Sunflower oil contains lecithin, tocopherols, carotenoids and waxes. It has smoothing properties and is considered non-comedogenic. A basic yet savvy oil, all around attempted and tried for ages in a wide assortment of emulsions formed for face and body Products.

Olive oil: This oil is a proper oil extricated from the products of *olea europaea*, family oleaceae. The significant constituents are triolein, tripalmitin, trilinolein, tristearate, monosterate, triarachidin, squalene, β -sitosterol and

tocopherol. It is utilized as skin and hair conditioner in beauty care products like salves, shampoos and so forth. It is a strong unsaturated fat infiltration enhancer.



Antiaging

Rhodiola rosea-Rhodiola rosea: It is regularly known as brilliant root, roseroot, Aaron's pole, cold root, ruler's crown, lignum rhodium, orpin rose. It is a plant in the Crassulaceae family that territories in chilly districts of the world. It fills predominantly in dry sandy ground at high heights in the icy areas of Europe and Asia, Traditional society medication utilized R. rosea to increment actual perseverance, work efficiency, life span, protection from high elevation affliction, and to treat weariness, melancholy, weakness, barrenness, gastrointestinal illnesses, contaminations, and sensory system issues. R. rosea is wealthy in phenolic compounds, known to have solid cancer prevention agent properties.



Carrot: It is gotten from the plant *Daucus carota* having a place with family Apiaceae. It is an important spice since ages as because of its wealth in Vitamin A alongside other fundamental nutrients. Carrot seed oil is utilized as hostile to maturing, reviving and restoring specialist. The carrot gets its trademark and dazzling orange tone from β -carotene, and lesser measures of α -carotene and γ -carotene, α and β -carotenes are incompletely used into vitamin A in people.



Ginkgo: In China and Japan, the leaves and nuts of the Ginkgo biloba (*G. biloba*) tree have been utilized for millennia to treat different ailments, including unfortunate blood course; hypertension; unfortunate memory, and misery, especially among the older; male feebleness. Moreover, it is acquiring a comparable standing as a cell reinforcement and calming specialist. Ginkgo biloba has a place with family Ginkgoaceae, which develops to an enormous size. The *G. biloba* extract EGb 761, ready from the tree's leaves, is a characteristic combination containing flavone glycosides (33%), for the most part quercetin and kaempferol subsidiaries, and terpenes (6%), which has displayed the ability to confined from the leaves of *L.inermis* has shown critical antifungal anti-microbial impact.



Dandruff treatment

Ayurveda has various regular meds wherein the most well-known spices incorporate Neem, Kapoor (naphthalene), and Henna, Hirda, Behada, and Amalaki, Magic nut, Bringaraj, Rosary Pea, Sweet Flag, Cashmere tree and Mandor

Henna: Henna comes from the plant *Lawsonia inermis* family Lythraceae, which contain a color atom called Lawsone, which when handled produces Henna powder. Other than lawsone different constituents present are gallic corrosive, glucose, mannitol, fats, sap (2%), adhesive and hints of an alkaloid. Leaves yield henna tannic corrosive and an olive oil green sap, dissolvable in ether and liquor.



Essential oils

Rose oil: Roses are generally alluded to as the world's #1 bloom to some degree because of their immense variety in plant environment and flower from the underground stems of the tropical perpetual spice *Curcuma longa* of the family Zingiberaceae. Turmeric contains a wide scope of phytochemicals including, demethoxycurcumin, bisdemethoxycurcumin, zingiberene, curcumol, curcumenol, eugenol, tetrahydrocurcumin, triethylcurcumin, curcumin, turmerin, turmerones, and turmeronols. C.urcumin is the phytochemical that gives a yellow tone to turmeric and is currently perceived as being answerable for a large portion of the remedial impacts.



Antioxidants

Tamarind: Tamarind or *Tamarindus indica* L. of the Fabaceae, subfamily Caesalpinioideae comprises of amino acids, unsaturated fats and minerals of tamarind plant parts. The most recognized quality of tamarind is its sweet acidic taste because of tartaric corrosive. Other than being a rich wellspring of sugars, tamarind organic product is likewise an astounding wellspring of vitamin B and contains minerals, display high cancer prevention agent limit that have all the earmarks of being related with a high phenolic content, and in this way can be a significant food source.

L-ascorbic acid: Vitamin C is vital for the hydroxylation of proline, procollagen, and lysine. L-ascorbic acid further develops the progressions brought about by photograph harm. L-ascorbic acid has been utilized really to invigorate collagen fix, in this way eliminating a portion of the impacts of photograph maturing on skin.

Vitamin E: (Alpha-tocopherol) is the major lipophilic cell reinforcement in plasma films and tissues. The term vitamin E by and large alludes to 30 normally happening atoms (4 tocopherols and 4 tocotrienols), all of which show vitamin E movement. Its significant job is by and large viewed as the capture of chain spread and lipid peroxidation by rummaging lipid peroxy revolutionaries, subsequently shielding the cell layer from obliteration.

II. Conclusion

Natural beauty care products are ready, utilizing passable restorative fixings to shape the base in which at least one home grown fixings are utilized to treat different skin afflictions and for the beautification. The synthetic definition of this large number of restorative items incorporates expansion of different regular added substances like waxes, oils normal tone, regular scents and portions of plants like leaves, and so on the Cosmeceuticals are specialists that lie somewhere close to unadulterated beauty care products (lipstick and rouge) and unadulterated medication (anti-toxins, corticosteroids) techniques. The restorative items are the most ideal choice to diminish skin issues, for example, hyper pigmentation, skin wrinkling, skin maturing and harsh skin surface and so forth the interest of natural restorative is quickly growing. The benefits of natural beauty care products are lower cost, aftereffects free, ecological cordial, protected to utilize and so on likewise has an incredible future ahead when contrasted with the engineered beauty care products. Legitimate guideline of these spices and normalization will prompt gigantic and huge development in natural beauty care products field.

References

- [1]. S. Pandey, N. Meshya and D. Viral, Herbs play an important role in the field of cosmetics.
- [2]. International Journal of PharmTech Research, 2 (2010) 632-639.
- [3]. V. Kapoor, Herbal cosmetics for skin and hair care. (2005)
- [4]. Z. Draelos, Cosmetic Consultation Topical Antiinflammatory Agents. COSMETIC DERMATOLOGY CEDAR KNOLLS-, 16 (2003) 41-44.
- [5]. D.A. Glaser, Anti-aging products and cosmeceuticals. Facial plastic surgery clinics of North America, 12 (2004) 363-72, vii.
- [6]. P.L. Kole, H.R. Jadhav, P. Thakurdesai and A.N. Nagappa, Cosmetic potential of herbal extracts. (2005)
- [7]. K. Sumit, S. Vivek, S. Sujata and B. Ashish, Herbal cosmetics: used for skin and hair. Inven. J, 2012 (2012) 1-7.
- [8]. R.S. Pal, Y. Pal, N. Saraswat, P. Wal and A. Wal, Current Review on Herbs for Derma Care. The Open Dermatology Journal, 13 (2019)
- [9]. A.K. Aarsand, P.H. Petersen and S. Sandberg, Estimation and application of biological variation of urinary δ -aminolevulinic acid and porphobilinogen in healthy individuals and in patients with acute intermittent porphyria. Clinical chemistry, 52 (2006) 650-656.
- [10]. Kapoor VP: Herbal Cosmetics for skin and hair care. Natural Product Radiance, 306-314.
- [11]. Chen Q. Evaluate the effectiveness of the natural cosmetic product compared to chemical-based products. Int J Chem 2009;1:57-9.
- [12]. Chen Q. Evaluate the effectiveness of the natural cosmetic product compared to chemical-based products. Int J Chem 2009;1:57-9.
- [13]. S. Sang, K. Lapsley, R.T. Rosen and C.-T. Ho, New prenylated benzoic acid and other constituents from almond hulls (*Prunus amygdalus* Batsch). Journal of agricultural and food chemistry, 50 (2002) 607-609.
- [14]. USDA-NRCS. (2012), World Wide Webpublication.

- [15]. Available from: <http://www.msmanuals.com/home/skin-disorders/biology-of-the-skin/structure-and-function-of-the-skin>. [Last accessed on 2018 Jan 28].
- [16]. Available from: <http://www.inetteacher.com/Upload1/102290/docs/ENOTES%20Skin.pdf>. [Last accessed on 2018 Feb 03].
- [17]. Available from: <http://www.austincc.edu/sziser/Biol%202404/2404LecNotes/2404LNExII/b.Membranes,%20Glands%20&%20Skin.pdf>. [Last accessed on 2018 Feb 03].
- [18]. Top 7 Advantages of using Natural Cosmetics.
- [19]. Available from: <https://www.aunaturalnutrition.com/articles/what-causes-your-skin-to-age-the-intrinsic-extrinsic-factors>. [Last accessed on 2018 Feb 06].
- [20]. Masnec IS, Situm M. Skin Aging. *Acta Clin Croat* 2010;49:515-9.
- [21]. Tobin DJ. Introduction to skin aging. *J Tissue Viability* 2017;26:37-46.
- [22]. Ichihashi M, Ando H, Yoshida M, Niki Y, Matsui M. Photoaging of the skin. *Anti Aging Med* 2009;6:46-59.
- [23]. Available from: https://www.en.wikipedia.org/wiki/Intrinsic_and_extrinsic_aging. [Last accessed on 2018 Jan 26].
- [24]. Singh G. Can we prevent skin aging? *Indian J Dermatol Venereol Leprol* 2009;75:447-51.
- [25]. Available from: <https://www.sotmp.wordpress.com/2015/06/03/medical-preparedness-burn-treatment/>. [Last accessed on 2018 Mar 01].
- [26]. Rattan SI. Hormetins as novel components of cosmeceuticals and aging interventions. *Cosmetics* 2015;2:11-20.
- [27]. Verma A, Gautam SP, Devi R, Singh N, Singh HL. Cosmeceuticals: Acclaiming its most fascinating position in personal care industry. *Ind Res J Pharm Sci* 2016:3.
- [28]. Dureja H, Kaushik D, Gupta M, Kumar V, Lather V. Cosmeceuticals: An emerging concept. *Ind J Pharmacol* 2005;37:155-9.
- [29]. Vaishali SK, Ashwini GC, Kshitija PD, Digambar NN. Cosmeceuticals an emerging concept: A comprehensive review. *Int J Res Pharm Chem* 2013;3:2231-781.
- [30]. Aziz AA, Taher ZM, Muda R, Aziz R. Cosmeceuticals and Natural Cosmetics. *Research Gate* 2017:126-175. Available from: <https://www.researchgate.net/publication/313796813> [Last accessed on 2018 Feb 14].
- [31]. Oricha BS. Cosmeceuticals: A review. *African J Pharm Pharmacol* 2010;4:127-9.
- [32]. Mc Auley MT, Guimera AM, Hodgson D, Mcdonald N, Mooney KM, Morgan AE, *et al*. Modelling the molecular mechanisms of aging. *Biosci Rep* 2017;37 :1-20.
- [33]. Available from: http://www.happi.com/issues/2013-12/view_features/the_role_of_antioxidants_in_dermatological-cosmetic-formulas#sthash.Xq73eXPo.dpuf. [Last accessed on 2018 Feb 14].
- [34]. Uwa LM. The anti-aging efficacy of antioxidants. *Curr Trends Biomed Eng Biosci* 2017;7 :1-3.
- [35]. Silva SA, Michniak-Kohn B, Leonardi GR. An overview about oxidation in clinical practice of skin aging. *An Bras Dermatol* 2017;92:367-74.
- [36]. Jimtaisong A. Cosmeceuticals. 2009; Available from :http://cosmeticsci.mfu.ac.th/download/skin/8jan2010/Cosmeceuticals_MS-2-2009.pdf [Last accessed on 2018 Feb 15].
- [37]. Available from: https://www.janssencosmetics.com/Uploads/_Untergruppe/1061_Skin_Regeneration/1061_Ingredients_Information_Skin_Regeneration.pdf. [Last accessed on 2018 Feb 15].
- [38]. Korać RR, Khambholja KM. Potential of herbs in skin protection from ultraviolet radiation. *Pharmacogn Rev* 2011;5:164-73.
- [39]. Ribeiro AS, Estanqueiro M, Oliveira MB, Lobo JM. Main benefits and applicability of plant extracts in skin care products. *Cosmetics* 2015;2:48-65.
- [40]. Khan BA, Akhtar N, Akhtar R, Khan H, Murtaza G, Ali A, *et al*. Human skin, aging and antioxidants. *J Med Plants Res* 2012;6:1-6.
- [41]. Działo M, Mierziak J, Korzun U, Preisner M, Szopa J, Kulma A, *et al*. The potential of plant phenolics in prevention and therapy of skin disorders. *Int J Mol Sci* 2016;17:160.
- [42]. Sk AS, Duraivel S, Niharika R, Anusha P, Qudusiya SM. A review on natural bioactive compounds as potential anti-wrinkle agents. *World J Pharm Pharm Sci* 2014;3:528-44.
- [43]. Available from: <http://www.lifeextension.com/magazine/2011/11/topical-resveratrol-combats-skin-aging/page-01>. [Last accessed on 2018 Feb 18].
- [44]. *Bijauliya et al., IJPSR, 2017; Vol. 8(12): 4930-4949.*
- [45]. Rabiah Bashir *et al.*/Ad. *J. Chem. B*, 2021, 3(3), 277-288
- [46]. Wathoni *et al. Int J App Pharm, Vol 10, Issue 5, 2018, 13-16*
- [47]. Sari R, Ferdinan A. Antibacterial activity test of liquid soap from leaf aloe vera leaf extract. *J Med Faculty University Tanjungpura Pontianak* 2017. p. 111-20.
- [48]. Mahawar, *et al.*: Unmet need and challenges of skin aging by herbal anti-aging cosmeceuticals
- [49]. Sumithra R, Suhil M, Guru DS. Segmentation and classification of skin lesions for disease diagnosis. *Proc Computer Sci* 2015;45:76-85. 1.Hughes GR: *J. Soc. Cosmet. Chem.*, 1959; X: 159.