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CURRENT STUDY ON HERBS FOR SKIN CARE- COMPREHENSIVE REPORT

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Abstract: Moisturizers are one of the most widely used preparations in cosmetics and have been extensively used to soften the skin for consumers. Moisturizers work effectively in combating dry skin which may cause pain, tightness, itch, stinging, and/or tingling. The aim of this review is to evaluate published studies on the history, ingredients, preparation processes, characteristics, uses and applications of moisturizers. Moisturizers bridge the gap between medicine and consumer goods by being used to make the skin more beautiful and healthier. In the future, in moisturizer therapy, the capacity to adapt specific agents to specific dermatological demands will be crucial. Cosmetically, moisturizers make the skin smooth by the mechanism of increasing the water content in the stratum corneum, hence exerting its most vital action, which is moisturizing action and maintaining a normal skin pH.

Key words: Skin care, Amla, Tulsi, Chickweed, Aloevera.

Introduction

Creams are considered an important part of cosmetic product as topical preparations from time immemorial due to their ease of application to the skin and also their removal. From cosmetic purposes, Pharmaceutical creams have a variety of applications such as cleansing, beautifying, altering appearance, moisturizing etc. to skin protection against bacterial, fungal infections as well as healing cuts, burns, wounds on the skin. These semi solid preparations are safe to use by the public and society. The human skin is easily vulnerable to injury but it has the capability to heal on its own. However, the natural healing process can take time and there is also risk of infection especially in the early stages of injury. Herbal cosmetics are in high demand these days due to the broad expansion in the usage of herbs in the manufacturing of cosmeceuticals for personal care systems. Cosmetics are substances that are applied to the human body to promote beauty, cleanse, beautify, and change appearance without changing the functions or structure of the body. The Greek term "kosm tikos," which means to have authority, expertise, and arrangement in decorating, is where the word "cosmetic" originates (Kumar Sumit, *et al.*, 2012). In such cases, medicated creams can be applied to the site of injury to speed up the healing process as well as protect the wound from infection. In this review, we have focused on the use of topical drug delivery system i.e. pharmaceutical creams for wound healing with det ailed discussion relating to the wound healing process, suitable methods of preparation of creams, their classification based on their function, their advantages and disadvantages, characteristics and the various types of creams, ingredients used in the formulation of creams and their various evaluation parameters

Figure 01: Natural Skin Nourishing Cream

Beauty and skin health are essential components of overall wellbeing, and there is an increasing global need for high-quality skincare products. The capability of skin nourishing creams to improve the texture, moisture, and general appearance of the skin has led to tremendous growth in demand for these products (Riya Arora, *et al.*, 2019).

2. Skin nourishing cream:

Skin-nourishing creams, commonly referred to as moisturizers or emollients, are topical formulations designed to maintain and promote the health of the skin. These types of moisturizers are essential for keeping skin hydrated, preventing dryness, and shielding it from external aggressors. An effective skin-nourishing cream can offer several advantages, including increased skin suppleness, diminished wrinkles, and a radiant complexion. (Kajal Nivrutti Tangadkar, *et al.*, 2022). An efficient skin-nourishing cream's performance is significantly influenced by the components it contains. Shea butter, cocoa butter, and other oils are a few of the elements that soften the skin and keep moisture in. Popular humectants like glycerin and hyaluronic acid pull moisture from the air into the skin to hydrate it. Green tea extract and the vitamins C and E provide resistance against free radicals and environmental harm. Amino acid components encourage the synthesis of collagen, which enhances skin firmness and suppleness. (Mohiuddin AK. 2019).. Different herbal active components are used in the formulation of herbal skin cosmetics, which are then mixed with the cosmetic foundation to hydrate and treat various skin conditions. Compared to synthetic cream, herbal creams have various advantages. Most creams now on the market are made from medications with a synthetic origin and provide more fairness to the face, but they also have several undesirable side effects, including irritation and allergic reactions. Whereas Herbal creams provide nourishment and many other benefits to the skin without showing any adverse effects. (Ashawat MS, *et al.*, 2009). Various herbs were found to have potentially healing and protective properties for the skin. Herbs such as Calendula Officinalis, Chickweed, Tulsi, Chamomile, Amla, Aloe vera, Grapefruit. An attempt is made to prepare an herbal skin nourishing cream using these natural ingredients.

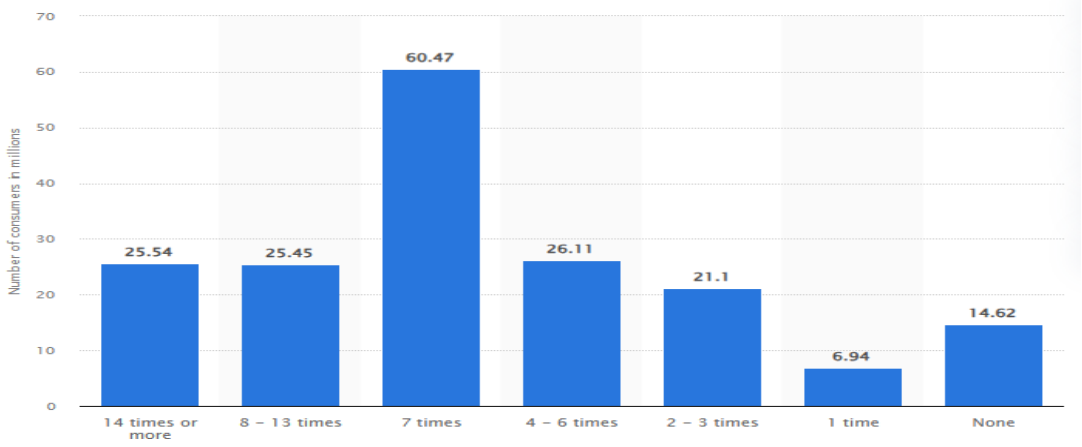
In future, more advanced technologies such as nano particles and ai evaluations etc. could be used for preparation, formulation, and evaluation of skin nourishing creams.

3. Historical evolution of skin nourishing cream:

The earliest cosmetics-related artifacts were found in Ancient Egypt, some 6000 years ago. The Egyptians frequently use aloe, myrrh, and frankincense. They were employed as anti-wrinkle treatments by the ancient Egyptians who thought these ingredients, especially frankincense, had anti-aging effects. Queen Cleopatra and other Egyptians hydrated and nourished their skin with mixtures made of honey, milk, and oils. These organic components supplied vital nutrients and moisture, assisting in preserving an appealing young and beautiful complexion. (Chaudhri SK and Jain KN. *et al.*, 2009). Oils and plant extracts were considered valuable for their skincare properties in classical Greece and Rome. Particularly popular as a moisturizer for the entire body as well as the face was olive oil. These ancient cultures understood the value of skincare and paved the path for future developments in cosmetology **(**Mawazi S M, *et al.*, 2022). The nourishing and moisturizing cream industry achieved significant progress in the 20th century. The development of specialized formulas that target specific skin issues including dryness, age, and sensitivity was made possible by advances in cosmetic science. Hyaluronic acid, retinol, and antioxidants were key ingredients that reshaped the skincare industry by offering key benefits for skin nourishment and regeneration.

4. Current developments

Modern technology's arrival led to a surge in the skincare sector. Cosmetic chemistry advancements resulted in the development of lightweight, non-greasy skin nourishing cream that were swiftly absorbed into the skin, making them more suited for daily use. (Fabrizio Spada, *et al.*, 2018).



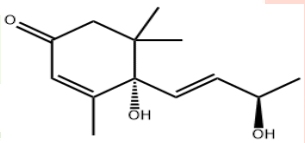
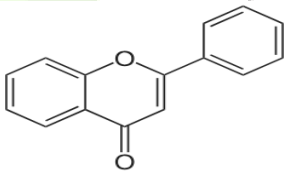
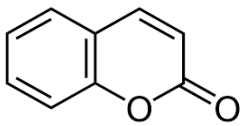
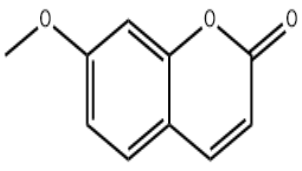
Graph 01: Survey report shows the frequency of moisturizing cream used Americans

Skin care solutions with various benefits in a single mix are also in high demand among consumers. The use of skin-nourishing creams with additional SPF, anti-aging benefits, and skin-brightening ingredients has grown in popularity. This trend fits with the hectic lifestyles of many people who are looking for quick and convenient skincare solutions. (Daniel Ekpa Effiong *et al.*, 2022)._A growing trend in recent years has been toward natural and organic skincare. Consumers are becoming increasingly concerned about the materials they use on their skin, which has increased the need for formulations that are cleaner and more environmentally friendly. Plant-based nourishing and moisturizing creams are gaining popularity as more and

more ecologically concerned people look for solutions that work well (Fabrizio Spada, *et al.*, 2018). In modern industrial cosmetics, plant natural extracts are used on a large scale and are presented on the ingredients list as a true product advantage, a true recommendation regarding their beneficial effects; For the plant effects to be beneficial, not all plants can be used to treat any skin problem. Some plants (chamomile, thyme, sage, juniper etc.) have astringent and antiseptic effects, and their regular use for skin care leads to reduced skin pores (Sangeeta Kumari and Paul Khurana SM. 2013.)

5. Different sources of herbs for skin care:

Table No 1: Herbs containing Phytoconstituents and their Benefits

SI No	Plant Name	Phytoconstituent	Skin benefits
1.	**Name**: Chamomile **Synonym:** *Scented May-weed, Matricaria recutita, German chamomile, Hungarian chamomile* **Family:** Asteraceae **Biological source:** Standardized tea and herbal extracts are prepared from dried flowers of *Matric aria* species.  Figure 2: Chamomile flower (Ompal Singh, *et al.*,2011; Jalal Bayati Zadeh, *et al.*, 2014; Janmejai K, *et al.*, 2010; Srivastava K, *et al.*, 2009; Paula Gardiner.	Sesquiterpenes, Flavonoid Coumarins, Poly-acetylene Herniarin, Umbelliferon Phenyl-Propanoids, Luteoline, Chlorogenic acid, Cafeic acid, Luteoline-7-O-Glycoside, Squercetins-M. Rutin, Naringenin.  Figure 03: Sesquiterpenes  Figure 04: Flavonoid  Figure 05: Coumarin  Figure 06: Herniarin	• Reduce the visibility of fine lines, wrinkles, and other common signs of aging. • These protect the skin from the aging effects of free radicals. • Reduce inflammation and redness, due to presence of chamomile, which help in reducing skin irritation and inflammation, redness. • For sensitive skin, it calms sensitive skin and helps in the healing of injured skin. • Relieve eczema, acne, reduce the symptoms of anti-inflammatory activity, eczema, it can significantly lessen the discomfort caused by the aforementioned skin irritation.

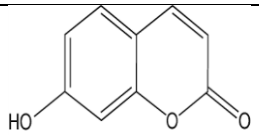
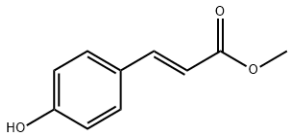
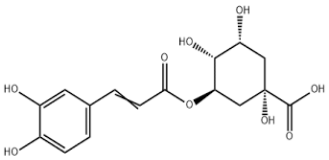
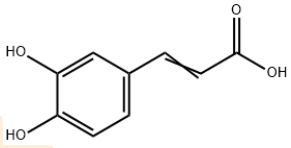
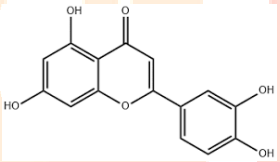
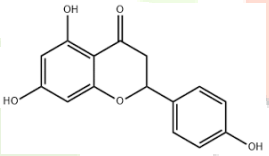
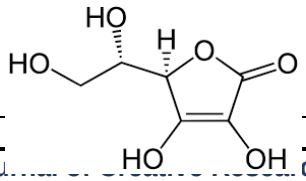
	1999).	 Figure 07: Umbelliferones  Figure 08: Phenyl-Propanoids  Figure 09: Chlorogenic acid  Figure 10: Caffeic acid  Figure 11: Luteolin  Figure 12: Naringenin	
2	**Name**: Amla **Synonyms:** Emblica, Indian goose berry **Family:** Euphorbiaceae **Biological Source:** This consists of dried, as well as fresh fruits of the plant *Emblica officinalie / and Phyllanthus* .	Minerals, amino acids, and vitamin C. Fruits contains pulpy component such as Gallic acid 1.32 %, tannin sugar 36.10 %, Gum 13.75 %, albumin 13.08 %, cellulose 17.08 %, minerals 4.12 %, moisture 3.83%. Recently Two alkaloidal components have been newly reported in fruits. 	• A natural blood purifier, reduces the occurrence of acne, speeds up skin recovery. • Safeguards and maintains gorgeous, radiant skin. • It gets rid of blemishes, fine lines, wrinkles, improves the color of the skin to keep it looking fresh. • It is incredibly rich in antioxidants, vitamin C,

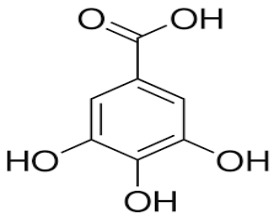
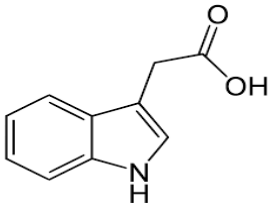
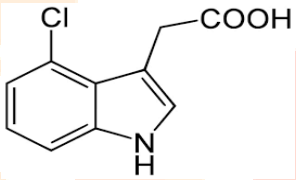
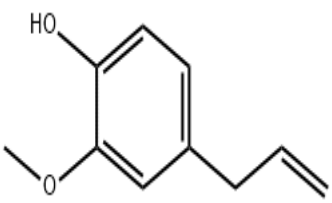
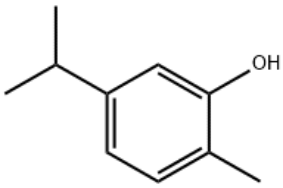
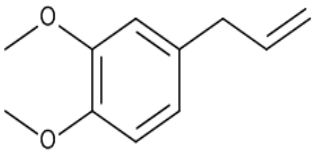
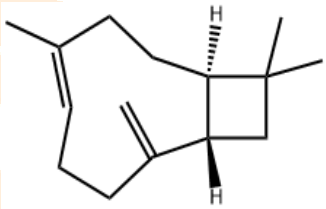
	 **Figure 13: Amla fruits** (Sandhya S. Ambhore *et al., 2023;* Swetha Dasaroju, *et al.*, 2014; Alisha Pereira, *et al.*, 2015; Pandey Shivanand, *et al.*, 2020; Firuz Fatema Pria, 2019).	**Figure 14: Vitamin C**  **Figure 15: Gallic acid**  **Figure 16: Idol acetic acid**  **Figure 17: Auxin**	which assists to lighten the skin's complexion. • The skin becomes more collagen-rich and supple. • It Reduce, skin pigmentation, cleanse your skin and aids in lightening skin discoloration in tanning skin removal. Leprosy, psoriasis, skin allergies, and eczema. • It promotes slower skin aging, keeps skin looking young since it is rich in antioxidant. • Ascorbic acid which protects the skin from the damaging effects of free radicals. • When applied topically to the skin, acts as a gentle cleanser to your skin.
3	**Name**: Tulsi **Synonyms:** Sacred basil, Holy basil. **Biological source:** *Tulsi consists of fresh and dried leaves of Ocimum sanctum* Linn**.** **Family:** Lamiaceae 	Volatile oils such as Eugenol 70 %, carvacrol 3%, Eugenol methyl-ether 20 % and Caryophyllene, secondary metabolites like Glycoside, tannins, saponins. In addition to this, traces amount of Maleic Acid, Citric Acid, Tartaric acid also present in the plant. 	• It reduces stress, enhances stamina. Deep-cleansing impact completely eliminates extra oil along with dirt and other contaminants. • It exhibits anti- fungal antibacterial, anti-inflammatory characteristics aid in blood purification and the removal of germs and toxins from the skin. • Astringent properties help

	Figure 18: Tulsi Plant (Renu Kadian, 2012; Deepika Deepanitwa Sahoo ,*et al.*, 2022; Mohit Pal, *et al.*, 2022; Sunita Verma. 2016; Sanjay Kumar Rao, *et al.*, 2023; Lopamudra Sethi, 2020).	**Figure 19: Eugeno**  **Figure 20: Carvacrol**  **Figure 21: Eugenol methyl-ether**  **Figure 22: Caryophyllene** Flavones such as isoflavones, flavanols, furanocoumarins, and anthocyanidin chemical compounds are active, anti-oxidant, anti-inflammatory and antibacterial properties.	the skin by absorbing excess moisture and oil, drying up any existing acne. • It helps the skin by slowing down the signs of aging. Fights free radicals, renews and restores the youthful shine. • It improves the uneven skin tone, hyper pigmentation caused by excessive melanin synthesis, environmental pollutants, harmful UV radiation. • Skin tone is effectively lightened with Tulsi. Its detoxifying properties provide relief from irritation, heat, tension, and several other skin disorders. It also Prevent loss of skin colour. • Use to treat leukoderma or loss of skin colour. • Use to treat ringworm infection and also treat insect bite.
4.	**Aloe Vera** **Name:** Aloe vera **Synonym:** Aloe, Kumari **Biological Source:** Aloe is the dried juice which collected by incision, from the bases of the leaves of various species of Aloe,	Aloe vera contains 75 % potentially active constituents and others like vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids. The most important constituents are three isomers of Aloins, they are **Barbaloin, β-**	▪ ***Improves skin health*** • Helps in elimination of free radicals in body, which can be responsible for preventable wrinkles and skin aging. Used to restore the appearance and feel of dry, cracked,

a. *Aloe perryi* Baker,
b. *Aloe vera* Linn
c. *Aloe barbadensis* Mil and
d. *Aloe ferox* Miller.

Figure 23: Aloe vera Plant.

(Arup Jyoti Pegu. 2019; Shelton RM,1991; Arshad H, *et al.*, 2015; Amar Surjushe, *et al.*, 2008; Florence Nalimu, *et al.*, 2021; Chithra P *et al.*, 1998; Sydiskis RJ, *et al.*, 1991; Robert H, 1997; Hutter JA, 1996; Montaner JS, 1996; West DP, *et al.*, 2003; Weihui Deng, *et al.*, 2020)

barboloin and Isobarbaloin.

- **Barbaloin** is pale yellow coloured, crystalline, bitter tase, water soluble glycoside, present in all the species.
- **Isobarbaloin** is a crystalline substance, present in Curacao aloe and absent in Socotrine and Zanzibar aloe.
- The chief constituents of Socotrine and Zanzibar aloe are Barbaloin and β-Barbaloin.
- Other tracers' constituents are Aloin, emodin and Aloe-emodin.

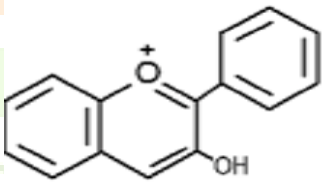


Figure 24: Anthocyanidin

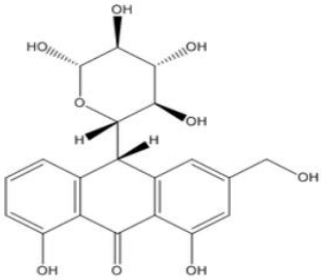


Figure 25: Barbaloin

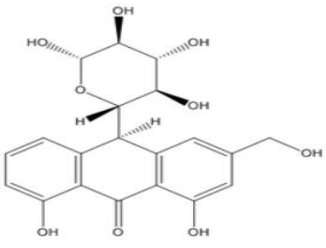
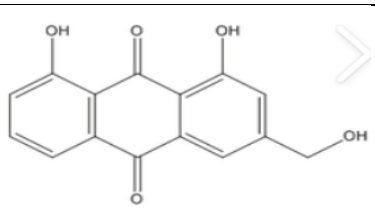
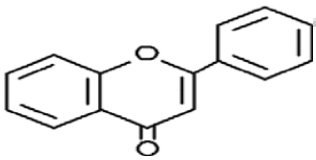
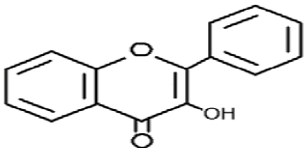
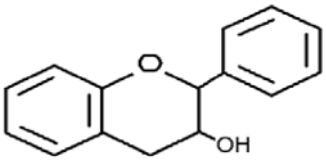
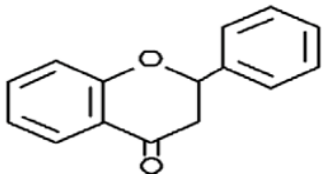
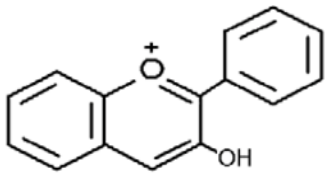
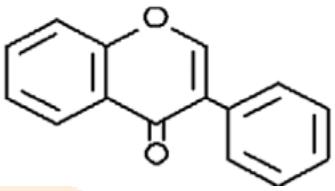


Figure 26: Isobarbaloin

or reddish skin not only on face, but also on feet hands, legs and arms.

- The entire plant is used for inflamed skin, joints, and respiratory tract ailments such as bronchitis. Applying whole chickweed to swollen areas and even shattered bones may provide relaxing, anti-inflammatory, anti-irritation properties.
- Aloe vera generally has various purposes for both people and animals, including cosmetic uses.
- There are three different plant preparations used: **Aloe vera whole leaf extract, aloe vera gel,** and **aloe vera latex**.
- **Food uses**: Used as a resource of functional food and health drinks.
- **Medicinal uses: W**ounds healing property, anti-inflammatory action and immunity activity, it shows anti-diabetic, laxative effect, antiviral antioxidant, antifungal and antitumor activities.

		 **Figure 27: Aloe-emodin.**	
5.	**Name: Grape fruit** **Synonym**: Grape fruit peel, Citrous fruit. **Scientific name:** It is a subtropical citrus tree, is well-known for its reasonably bitter, sour, to semi-sweet fruit known as ***Citrus paradisi,*** **Family:** Rutaceae  **Figure 28: Grape Fruit** (Weihui Deng, *et al.*, 2020; Shaaban, HAH, *et al.*, 2012; Carrington, 2003; Li Xiao meng, *et al.*, 2010; Hruza LL, 1993; Benrath J, *et al.*, 1995; Uckoo RM, *et al.*, 2012)	Flavones, isoflavones, flavanols, Furanocoumarins and antho-cyanidin are present in grapefruits. Researchers were found these chemical compounds are active and have antioxidant, anti-inflammatory, and antibacterial properties. The flavonoids naringin, quercetin, and kaempferol are of interest. Limonene, linalol, and linalyl format are the main chemicals in grapefruit. Grapefruit rind/peel and juice have different chemical compositions.  **Figure 29: Flavones**  **Figure 30: Flavanols**  **Figure 31: Flavan-3-ols**	• Protect the skin against the damage caused by the ultraviolet (UV) rays due to presence of Vitamin C. • **Antioxidant property keeps skin hydrate, boost the production of protein collagen and potentially aid in skin regeneration.** • By minimizing water loss from the skin's surface, the vitamin C derivative Magnesium ascorbyl phosphate helps to hydrate skin. • It helps in wound heal, reduces the skin pigmentation, and also enhances the glossy nature of skin due to beta carotene. • Entire plant used to treat skin inflammation, joints and respiratory diseases, anti-irritation and relaxing properties • It may help to reduce pigmentation, by reducing the production of melanin, • The antioxidant

		 **Figure 32: Flavanones**  **Figure 33: Anthocyanidins**  **Figure 34: Isoflavones**	properties of grapefruits beta carotene aid to lighten the skin.
	Name: Calendula flower **Synonym:** Scotch marigold, marigold flower, marigold **Scientific name:** Calendulas are annual or perennial plants with waxy, smooth, or glandular stems of ***Calendula officinalis*** **Family**: Asteraceae **Genus**: Calendula  **Figure 35: Calendula flower.** **(**Ali Esmail Al-Snafi,	**Flower:** Presence of Tripenoids (lupeol), Erythrodil, taraxasterol, Calenduloside, Calendula glycoside A and B, Cornulactic acid acetate. **Flavonoids:** Calendoflavoside, Quercetin, Isoquercetin, rutin, Narcissin, isorhamnetin. **Coumarins:** Umbelliferone **Volatile oils:** Limonene, Pinene, geraniol, α- c*arvacrol*. Nerolidolsabinene. **Leaves:** Plastoquinone, phylloquinone ubiquinone, α- Tocopherol, Quinones, **Root:** Terpenoid, Calenduloside B and E.	• Helps to reduce sensitivity and soothe irritation: Calendula extract is well-known for its ability to help relieve inflammation, especially in people with sensitive skin. • It keeps skin hydrated, healthy skin moister due to presence of volatile oils: Limonene, geraniol, nerolidols binene, α-Pinene, Carvacrol, Nonanal. • Helps to Rejuvenate skin: Calendula extract stimulates collagen formation in the skin, reducing the appearance of wrinkles and lines by making the skin appear smoother. • Promotes wound healing:

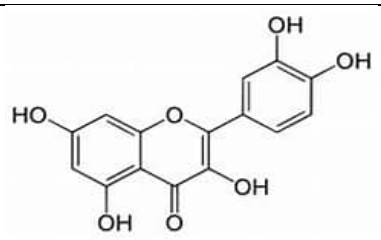
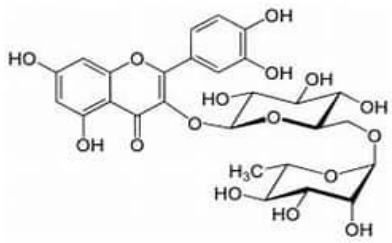
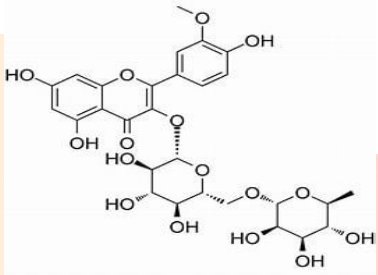
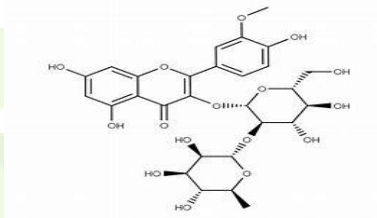
	2015; Kiran Shahane, *et al.*, 2013; Oluwole Solomon Oladeji, *et al.*, 2020)	 **Figure 36: Quercetin**  **Figure 37: Rutin**  **Figure 38: Narcissin**  **Figure 39: Calendoflavoside**	Calendula stimulates blood flow to the wound, supplying nutrients and oxygen for quicker healing.
	Name: Chickweed. **Synonym:** Star weed, Satin flower, winter weed. **Scientific name:** It is an annual flowering plant *Stellaria media*. **Family:** Caryophyllaceae **Genus:** Stellaria	**Whole Plant:** Anthraquinone, alkaloids, acidic components, carbohydrates, reducing sugar, cardiac, flavonoid, saponin and cyanogenic glycosides, resins, steroids, terpenoids, and tannins. **Leaves**: Isoflavonoids such as formononetin, daidzin, genistin, genistein, glycitein, ononin, isoformononetin and tectoridin. Flavonoidal glycosides such as Apigenin-	• It improves skin health in the elimination of free radicals in the body, which can be responsible for preventable wrinkles and skin aging. It can be used to restore the appearance and feel of dry, cracked, or reddish skin not only on your face, but also on your hands, legs, feet and arms.

Figure 40: Chickweed

(Ara Der Marderosian, 2014; Marta Rogowska, *et al.*, 2014; Sadegh Shabab, *et al.*, 2021; Ridhima Singh,*et al.*, 2022; Yuvraj Khamare, *et al.*, 2019)

7-glucoside, rutin, apigenin, flavone, luteolin-7- glucoside, naringenin-7- glucoside, kaempferol, luteolin, naringenin, scopoletin, and quercetin.

Aerial part: 6-methylheptyl-3′hydroxy-2′- methyl propanoate, 2, 4, 5, 7- tetra-methyloctane, and 2, 2, 4-trimethyloctan-3-one Anthocyanidins, proteins, carbohydrates, glycosides, flavonoids, alkaloids, saponins, triterpenoids, and steroids.

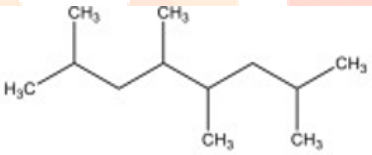


Figure 41: 2, 4, 5, 7-tetramethyloctane

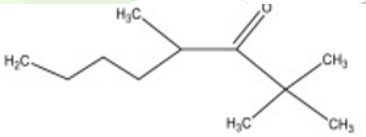


Figure 42: 2,2,4-trimethyloctan-3-one

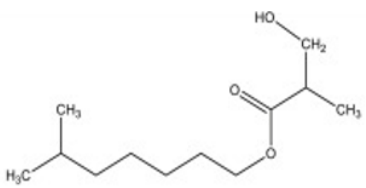


Figure 43: 6-methyl heptyl-3′-hydroxy-2′-methyl-propanoate.

- Reduces inflammation The entire plant is used for inflamed skin, joints, and respiratory tract ailments such as bronchitis.
- Applying chickweed whole plant extract to swollen areas or even shattered bones may provide anti-inflammatory, anti-irritation, relaxing properties. *Stellaria media* tea protects against diabetes.

6. DISSCUSSION:

Herbal cosmetics are made with herbal elements to treat a variety of illnesses, encourage a healthy lifestyle, and enhance the appearance of the skin without endangering its structure or functions. Many naturally occurring herbs have a variety of applications in skincare cosmetic formulations. The importance of herbal cosmetics, the herbs utilized in them, and their benefits over synthetic alternatives are all highlighted in the current review. There is a growing demand for natural cosmetics and a rise in the use of herbal cosmetics for skin care. In contrast to commercially available cosmetics, herbal cosmetics are extremely safe and do not cause any harmful or unfavorable effects, according to this review. We recommend using herbal cosmetics going forward to prevent skin issues (Manikandan Palanivelu, *et al.*, 2022). Human skin is constantly exposed to UV radiation during the day, which causes a variety of pathobiological alterations in the cells. These include uneven pigmentation, enhanced wrinkles, loss of suppleness, dryness, and roughness. Herbal beauty is used as a safe remedy for this symptom of growing older, even though there is abundant wealth in nature. However, this full evaluation was limited to 5 herbs in each category that are essential due to their potency and the chemical components that give them their therapeutic action on the skin. Consequently, following extensive research on all aspects, the best herbs with a secondary effect on aging could be found and assessed for their therapeutic and anti-aging properties Gupta R, *et al.*, 2022). It appears that the people of are well-versed in the uses of medicinal plants in their culture and traditions.

7. CONCLUSION:

Many naturally occurring herbs have a variety of applications in skincare, hair care, and antioxidant cosmetic preparations. The importance of herbal cosmetics, the herbs utilized in them, and their benefits over synthetic alternatives are all highlighted in the current review. In comparison to commercially available cosmetics, the results of this investigation showed that herbal cosmetics are extremely safe and do not cause any harmful or unfavorable effects. We advise using herbal cosmetics going forward to prevent skin issues. Herbal cosmetics need to go through quality control testing. It is thought to be secure over longer time period.

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