

## **A COMPREHENSIVE STUDY OF HERBAL COSMETICS PREPARED FROM FLAXSEED**

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### **ABSTRACT**

The word cosmetics is known since ages. Natural beauty is a blessing and human uses cosmetic to look good and attractive. Number of herbal plants are used to treat various diseases and skin conditions naturally. Herbs are used in cosmetic formulation as they are having natural ingredients or constituents. Nowadays, herbal cosmetics are widely used as they have good activity and lesser side effects. Herbal cosmetics are used for daily purpose including cleanser, moisturizer, toner, lotions, creams etc. Herbal products improve the various functions of skin by boosting growth of collagen and thus eradicating harmful effects of free radicals, and maintaining keratin structure and making skin healthy. Essential oils are concentrated liquids and complex mixture of volatile compounds and can also be extracted from some plant organs. Flaxseed is used as traditional medicine and in formulation of skin products which helps in reducing acne and wrinkles and also gives antiaging effect and makes skin glowing and flawless. Flaxseed is used in formulation of hair oil, hair gel which helps in moisturizing and nourishes the hair. Flaxseeds are also used as nutritional additive and used in preparation of some dietary items.

**Keywords: Cosmetics, Herbal, Collagen, Antiaging effect**

### **1. INTRODUCTION**

The word "cosmetic" comes from the Greek word "kosmtikos," which means "power, arrangement, or ability in beautifying. Individuals' skin and hair beauty is determined by their health, lifestyle, regular job, climatic conditions, and care. Excessive exposure to heat causes the skin to dry, resulting in wrinkles, freckles, blemishes, pigmentation, and sunburns. Cracks, wounds, maceration, and infections are all common side effects of the harsh winter. Skin illnesses affect people of all ages and can be caused by exposure to bacteria, chemical agents, biological toxins in the environment, and, to some extent, starvation. Herbal cosmetics are products that contain

phytochemicals derived from a variety of botanical sources to affect skin functions and give nutrients for healthy skin and hair. Herbal cosmetics are natural plants and their products that are utilised in cosmetic preparations for their aromatic value. The health, habits, routine, environmental factors, and upkeep of the skin all have a role in its beauty. During the summer, skin becomes dry, resulting in wrinkles, freckles, flaws, pigmentation, and sunburn. Cracks, wounds, macerations, and infections are common throughout the winter months. Skin diseases affect people of all ages and are caused by germs, chemicals, toxins, microbes, chemical agents, and biological toxins found in the environment, as well as malnutrition. Plants' natural content has no negative effects on the human body; rather, it enriches it with nutrients and other beneficial minerals.

Flax (*Linum usitatissimum*) is a linaceae family annual plant. This plant can reach a height of 60 cm and has slender, fibrous stems, lanceolate leaves with three veins that are up to 4 cm long and 4 mm wide, and bright blue blooms that are up to 3 cm in diameter. Flaxseed or linseed is a seed found in the fruit. Flaxseed has been ingested by humans since the beginning of civilisation. Flaxseed has the greatest Omega 3 fatty acid (alpha-linolenic acid) concentration of any seed. This important fatty acid, which should be taken in a typical diet, accounts for about 48% of all lipids. Flax is a functional food or a source of functional nutrients since it includes alpha-linolenic acid, lignans, and polysaccharides (other than starch), all of which have anti-inflammatory properties. Despite the fact that scientific data supports flaxseed use, many people are unaware of the benefits of this substance and its potential applications in food production.

## **2. FLAXSEED CHEMICAL COMPOSITION**

The seed includes roughly 40% lipids, 30% dietary fibre, and 20% protein. The chemical makeup of plants varies greatly between kinds and is also influenced by the environment in which they are cultivated. The seed contains 76 percent of the protein and 75 percent of the lipids found in the cotyledons. Only 23% of the lipids and 16% of the protein are found in the endosperm. Flaxseed's lipid makeup makes it a good source of Omega 3 fatty acids, particularly -linolenic acid (ALA), which can account for up to 52% of total fatty acids. Flaxseed is also a good source of phenolic compounds known as lignans, a colloid gum, and high-quality protein.

### **2.1 Lipids**

The oil in flaxseed is the most important component, accounting for 39 g 100 g<sup>-1</sup> dry matter, and it is this that has been processed. Oil is mostly stored in cotyledons, which include the highly sought-after -linolenic, linoleic, and oleic acids. Triacylglycerols make up 98 percent of flaxseed oil, with phospholipids (0.9 percent) and free fatty acids (0.1 percent) making up the rest. Oil extraction yield and fatty acid content (linolenic acid, omega 3; linoleic

acid, omega 6; oleic acid, omega 9) differ slightly among writers, and both are influenced by oil extraction technology that they are found in various sections of the seed. As a result, digesting it poses significant difficulties.

## **2.2 Protein**

Flaxseed has an average protein level of 22 g per 100 g of seed. The protein content of a product is affected by the conditions in which it is processed, such as dehusking or defatting. Because the husk contains a minimal amount of protein, meal made from dehusked and defatted seeds yields a high-protein isolate. The primary proteins in flax, as in other seeds, are globulins, which account for 18.6% of total protein in flax and 17.7% of total protein in other seeds. The limiting aminoacids include lysine, methionine, and cysteine, whereas flax protein is relatively rich in arginine, aspartic acid, and glutamic acid.

## **2.3 Fibre**

Fibre, the component that gives volume and form to the majority of foods, is not hydrolyzed in the digestive tract, thus it retains water and prevents cholesterol absorption during digestion. Insoluble fibre is made up of compounds like cellulose, hemicellulose, and lignin; soluble fibre is made up of substances like cellulose, hemicellulose, and lignin. This type of fibre is found in the highest concentration in whole-grain cereals. In the presence of water, soluble fibre forms a gel, which contains gums, pectins, and sugars, forming mucilage (8 percent dry weight of flaxseed).

## **2.4 Lignans**

Flaxseed's high presence of complex phenols like lignans is one of its most intriguing features. Secoisolariciresinol (SDG) is the most notable, but isolariciresinol, pinoresinol, matairesinol, and other ferulic acid derivatives are also found. Consumption of lignans lowers cardiovascular risk and prevents the onset of some forms of diabetes. Flax lignans have antioxidant properties as hydroxyl radical sequestrators, as well as estrogenic properties due to their structural resemblance to 17--estradiol. SDG's antioxidant capacity is linked to the reduction of oxidative conditions caused by oxygen species.

## **3. FLAXSEED BENEFITS FOR SKIN**

Polyunsaturated fatty acids (FA)-rich oils are essential for human health. Flaxseed contains linoleic acid (LA), -linolenic acid (ALA), and -linolenic acid (GLA). Dry and sensitive skin is treated with topical applications of oils containing n-6 FA, LA, or GLA. Although there is a wealth of information on the effects of LA and GLA on skin

disorders, there is little information on the relationship between plasma FA concentrations and skin function. The current study looks on the effects of flaxseed oil intake on sensitive skin.

## **4. PHARMACOLOGICAL EFFECT**

### **4.1 Antioxidant effect**

Omega -3 fatty acids suppress oxygen free radical from neutrophils and monocytes, it also suppress production of interleukin-1, tumor necrosis factor, leukotriene B4 (LTB4). Lignans are platelet activating factor receptor antagonist and inhibit the production of oxygen free radicals by neutrophils. Secoisolariciresinol diglycoside (SDG). Flaxseed also contains small quantity of lignin matairesinol which can be converted into mammalian lignans by colonic bacteria.

### **4.2 Flaxseeds biological actions**

The inclusion of good quality omega-3 unsaturated fatty acids, alpha-linolenic acid (ALA), antioxidants such as phenolics, lignin, carotenoids, and tocopherols in flaxseed is linked to its nutritional and protective characteristics.

### **4.3 Lignans biological functions**

Flaxseed, whether whole or ground, is high in lignans (also known as phytoestrogens), such as secoisolariciresinol and matairesinol. These lignans have been found to have cell reinforcement and phytoestrogenic properties. Microscopic organisms in the colon convert them to the dynamic metabolites enterodiol and enterolactone. These metabolites are thought to have stronger cancer-prevention (antioxidant) and antiplatelet effects than the parent lignan secoisolariciresinol diglucoside, and to have either a weak estrogenic or antiestrogenic effect, depending on estradiol's natural dimensions.

## **5. COSMETICS PREPARED FROM FLAXSEED**

### **5.1 Hair gel**

Flax seed gel can be used as a moisturiser on the scalp and hair to help encourage hair growth and strengthen existing hair. Oils, creams, ointments, pastes, and gels are examples of topical formulations. Gels are becoming more popular these days since they are more stable and may provide controlled release than other semisolid preparations. Gel formulations can improve drug bioavailability by improving absorption properties. Pure Flaxseed Hair Gel will elongate and define curls, no matter what hair type or curl type, and give "wet curly look"

while hair is dry. This light weight natural flaxseed gel is created for curly, oily and wavy hair. It is enriched with flaxseeds and castor oil that provide a natural source of vitamin E. Flaxseed offers a natural remedy for hair regrowth and helps keep your hair strong, shiny and free from any crunch, frizz or flakes.

## **5.2 Facial gel**

Flax Seed Gel from Herbal Botanica has flax seed characteristics that help maintain the skin firm and reduce drooping with age. Flax seeds are high in lignin and antioxidants, which assist to prevent wrinkles and fine lines on the face. Flax seeds also contain fatty acids that aid to keep the skin hydrated and smooth.

## **5.3 Hair oil**

Flaxseed oil is created from flax seeds that have been ground and pressed to extract their natural oil, also known as flax oil or linseed oil. Omega 3 fatty acid is abundant in One Life Flaxseed Oil. It aids in the improvement of general health. Flaxseed is an anti-inflammatory food. Flaxseed extract nourishes the skin and keeps it supple. It's suitable for all skin types (normal, dry, and oily). Flax seed oil moisturises damaged hair, soothes sensitive scalps, and gives limp, lifeless hair volume.

## **6. LITERATURE REVIEW**

Herbal cosmetics have always drawn a lot of attention due to their high activity and less adverse effects than synthetic cosmetics. Herbal cleansers, moisturisers, toners, and other herbal cosmetics are created and used on a regular basis. Herbal cosmetics offer medical properties that influence skin's biological activity, depending on the components they contain. These products help the skin operate better by promoting collagen production, reducing free radical damage, maintaining keratin structure, and making the skin healthier.

Essential oils are concentrated liquids made up of a complex mix of volatile chemicals that can be collected from a variety of plant organs. Aromatic herbs and oils have been utilised as fragrances, cosmetics, and culinary ingredients for thousands of years. Essential oils are now widely used as a source of a variety of bioactive chemicals with antioxidative and antibacterial activities. Some essential oils have also been utilised as medicine. Flaxseed has a lot of antioxidant properties.

Skin sensitivity is a prevalent issue in the Western population, and it is linked to changes in skin qualities such as barrier function, hydration, and physiology. Dietary fatty acids (FA), particularly polyunsaturated FA, can influence skin characteristics.

Traditional medicine is well-known in India. Herbs are an old kind of Indian medicine devised by ancient sages whose keen observations led to the establishment of constitutional medicine. Herbal cosmetics are products that are used to improve one's look. The goal of this study was to develop and test a flaxseed herbal gel for hair moisturization and nourishment. Flaxseed (also known as linseed) is high in fatty acids and antioxidants, which help the scalp eliminate toxins and dead cells.

Although scientific data supports flaxseed eating, a huge portion of the population remains unaware of the advantages of flaxseed consumption and its potential usage as a functional food ingredient in foods. Flaxseed is well recognised for its high alpha-linolenic acid content, but it also contains lignans, soluble fibre, and protein, all of which are biologically active in the prevention of some non-communicable chronic diseases. For the cultivation of this crop, Southern Chile has a comparative advantage. This crop, when combined with full processing, has the potential to enhance the regional economy.

Flaxseed has long been prized for its oil, which has been used in paints and coatings, printing inks, soap, core oils, brake linings, and herbicide adjuvants. This review article aims to bring together the most recent extraction methodologies and fractionation strategies for isolating bioactive components from flaxseed essential oils. Oil extraction methods include solvent-free microwave extraction, supercritical fluid extraction, direct steam distillation, hydro distillation, and simple steam distillation, while bioactive component isolation can be accomplished using fractional distillation, vacuum distillation, and high-speed counter current chromatography.

## CONCLUSION

In the personal care system, the usage of herbal cosmetics has expanded by a factor of ten, and there is a high demand for herbal cosmetics. Bioactive chemicals in cosmetics alter the skin's biological functions and give the nutrients required for healthy skin and hair. Plants provide a variety of vitamins, antioxidants, oils, essential oils, hydrocolloids, proteins, terpenoids, and other bioactive compounds in general. There is plenty of room to launch a slew of herbal cosmetics with bioactive elements that aren't appropriate, such as fatty oils, essential oils, proteins, and appropriate additions. Despite the fact that flaxseed has been known since ancient times, it is not widely employed in food formulations today; nonetheless, recent research have enhanced its popularity. Flaxseed is high in substances with functional and bioactive qualities, including as alpha-linolenic acid, lignans, soluble fibre, and protein, which have been shown to help prevent certain non-communicable diseases.

## REFERENCES

1. Fathima, A., Varma, S., Jagannath, P., & Akash, M. (2011). General review on herbal cosmetics. *International journal of drug formulation and research*, 2(5), 140-165.
2. Rubilar, M., Gutiérrez, C., Verdugo, M., Shene, C., & Sineiro, J. (2010). Flaxseed as a source of functional ingredients. *Journal of soil science and plant nutrition*, 10(3), 373-377.
3. Neukam, K., De Spirt, S., Stahl, W., Bejot, M., Maurette, J. M., Tronnier, H., & Heinrich, U. (2011). Supplementation of flaxseed oil diminishes skin sensitivity and improves skin barrier function and condition. *Skin pharmacology and physiology*, 24(2), 67-74.
4. Manjula, D., Jenita, J. J. L., Premakumari, K. B., & Shanaz, B. (2018). Formulation and evaluation of flaxseed hair gel: a natural hair tamer. *International Journal of Research in Pharmacy and Chemistry*, 8(3), 487-491.
5. SanjanaPatil, Adiksha Mishra, Rashmi Kate, PradnyaSapkal, Dr. Ganesh Deshmukh A review article on herbal cosmetics for skin ISSNNO.2455-2631. September 2020 *International Journal of scientific development and Research*.
6. Shim, Y. Y., Gui, B., Arnison, P. G., Wang, Y., & Reaney, M. J. (2014). Flaxseed (*Linum usitatissimum* L.) bioactive compounds and peptide nomenclature: A review. *Trends in food science & technology*, 38(1), 5-20.
7. Basch, E., Mphil, S. B., Collins, J., Dacey, C., Harrison, M., & Szapary, P. (2007). Flax and flaxseed oil (*Linum usitatissimum*): a review by. *J Soc Integr Oncol*, 5(3), 92-105.
8. Neukam, K., De Spirt, S., Stahl, W., Bejot, M., Maurette, J. M., Tronnier, H., & Heinrich, U. (2011). Supplementation of flaxseed oil diminishes skin sensitivity and improves skin barrier function and condition. *Skin pharmacology and physiology*, 24(2), 67-74.
9. Shim, Y. Y., Gui, B., Arnison, P. G., Wang, Y., & Reaney, M. J. (2014). Flaxseed (*Linum usitatissimum* L.) bioactive compounds and peptide nomenclature: A review. *Trends in food science & technology*, 38(1), 5-20.