

A REVIEW ON HERBAL SUNSCREEN

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ABSTRACT

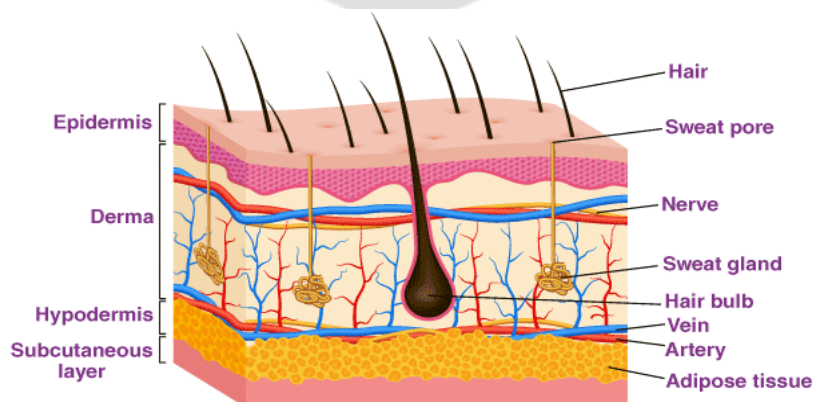
The objective of this work is about to study about a cosmetic (Herbal Sunscreen) for protection of skin from the natural ingredients which have different properties such as emollient, moisturizer, anti-acne, anti sweating in the ingredients such as aloe vera, turmeric, coconut oil, almond oil etc. Sunscreen is defined as a substance that shields the skin from the sun's ultraviolet radiation. Because of their ability to prevent UV- induced sunburns (the sun protection factor- SPF), sunscreen is frequently recommended for sun protection. Sunscreen have been shown to be beneficial effects on lowering the prevalence of skin disorders (sunburn, skin ageing & immunosuppression) because of their chemical properties to absorb, reflect and scatter UV radiation.

Natural products are used in sunscreen which protects the skin from UV rays by absorption. UV rays are divided into three wavelengths UV- A, UV- B & UV-C in which UV- B causes sunburn by affecting the epidermis layers. The exposure of skin to UV-B radiation has a destructive effect on keratinocytes by causing DNA damage that can subsequently lead to malignant transformation.

KEYWORDS: Herbal sunscreen, Natural products, Anatomy & Physiology of skin, UV wavelengths, SPF.

INTRODUCTION

A "cosmetic" is any substance used to clean, improve or change the complexion, skin, hair, nails or teeth. Cosmetics are a category of health and beauty products that are used to care for the face and body, or used to accentuate or change a person's appearance. Cosmetics are not only to modify appearance of an individual, but are also used for care of skin and body. Although, cosmetics are known for skin and body care, there are various types of cosmetics with specific and significant purpose. Cosmetics include beauty preparations (make-up, perfume, skin cream, nail polish) and grooming aids (soap, shampoo, shaving cream, deodorant). Many natural ingredients have properties that protect you from sun. Aloe vera is one of them. There are others



like almond oil, coconut oil, rose water, vitamin E, etc.

HUMAN SKIN:

Skin is the largest organ in human being, it is not only an organ but also a sense organ. It is not uniformly thick. The average thickness of the skin is about 1 to 2mm.

Skin is made of three layers-

- **The epidermis**, which provides waterproofing and serves as a barrier to infection.
- **The dermis**, which serves as a location for the appendages of skin.
- **The hypodermis** subcutaneous adipose layer.

EPIDERMIS:

The epidermis of the skin is formed by stratified epithelium, which consists of 5 layers.

- a) Stratum Corneum
- b) Stratum Lucidum
- c) Stratum Granulosum
- d) Stratum Spinosum
- e) Stratum Germinativum

HERBAL SUNSCREEN

Herbal sunscreen (also known as herbal sunblock, suntan lotion) is a cream, lotion, spray containing herbal ingredients which helps to protect from the UV radiation and which reduce sunburn and other skin damage.

The purpose of suntan preparation is to assist the skin in tanning without painful effects and purpose of anti-burn preparation is to minimize the harmful effects of sunburn. The material which are used for the above purpose are known as sun tanning agents and sunburn preventive agent. Combinely known as sunscreen.

Ideal Characteristics of Herbal Sunscreen

- An ideal sunscreen must have broad range of UV rays causing sunburn and be stable in the presence of sunlight.
- It should not be easily washed away with water.
- It should be safe, effective, chemically inert and should not cause irritation, sensitisation and toxicity to the skin.
- It should be non- toxic.
- It should be stable to heat.

Advantages of Herbal Sunscreen

- Easily Available
- Inexpensive
- Easy to manufacture
- No special equipment needed for preparation.

Disadvantages of Herbal Sunscreen

- They are difficult to hide taste and odour.
- Manufacturing process are time consuming and complicated.
- Herbal drug have slow effects as compare to allopathic dosage form it also requires long term therapy.

Benefits of Herbal Sunscreen

- Reduce skin cancer
- Protect against sunburn.

- Stop DNA damage.
- Maintain the look and texture of skin.
- Delays premature signs of ageing.

SPF:

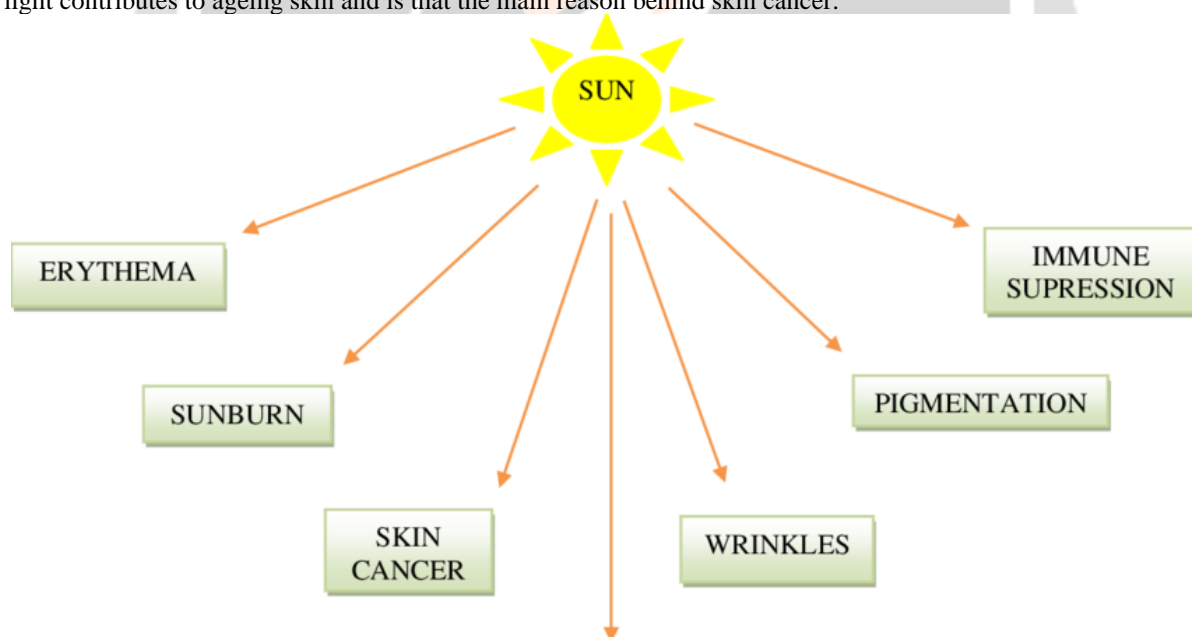
SPF stands for Sun Protection Factor issue and is that the system used worldwide to work out what quantity protection a emollient provides, applied to the skin at a thickness of two mg/cm. The take a look at works out what quantity ultraviolet illumination radiation (mostly UVB) it takes to cause barely detectable sunburn on a given person with and while not emollient applied. as an example, if it takes ten minutes to burn while not a emollient and a hundred minutes to burn with a emollient, then the SPF of that sunscreen is ten (100/10). A emollient with a SPF of fifteen provides > 93% protection against UVB. Protection against UVB is enhanced to ninety-seven with SPF of 30+. The distinction between a SPF fifteen and a SPF thirty emollient might not have a clear distinction in actual use because the effectiveness of a emollient has a lot of to try to to with what quantity of it's applied, however typically it's applied, whether the person is sweating heavily or being exposed to water. Therefore a emollient with SPF 15+ ought to give adequate protection as long because it is getting used properly.

Photo protection:

- Sunscreen alone may provide insufficient protection from UVR.
- Sunscreen function best to prevent sunburn. From UV- B.
- They provide more limited protection from UV- A radiation.
- Sun avoidance remains the most desirable form of sun protection.

Sun Protection:

It is important to guard skin and eyes from the damaging impact of the sun as a result of exposure to ultraviolet light contributes to ageing skin and is that the main reason behind skin cancer.



➤ MATERIALS AND METHODS



Aloe Vera (*Aloe barbadensis*)

Aloe vera is a good active ingredient to reach in Sunscreen. It has been proven to both treat and prevent burns on your skin. It blocks UVA and UVB rays and maintain skin natural moisture balance. It stop the sunburn and stimulate immune system intervention. Aloe vera gel can be used to help with the healing process of sunburn. It helps to relieve pain and redness by reducing inflammation. The gel also stimulate the production of collagen which help to the healing process.

Turmeric (*Curcuma longa*)



Turmeric is widely used in cooking and gives Indian curry its flavor and yellow color. It is also used in mustard and to color butter and cheese. Turmeric has been used in both Ayurvedic and Chinese medicine as an anti-inflammatory, to treat digestive and liver problems, skin diseases, and wounds.

Almond (*Prunus amygdalus*)



It is the richest source of polyphenolic compounds especially flavonoids and phenolic acids. Its potential is that the property of UVB protection of this plant's skin extract and its topical application has significant antioxidant, skin brightening, and anti-photo aging properties.

Coconut (*Cocos nucifera*)



Coconut oil is 92% saturated fat and therefore raises cholesterol levels similar to animal fats (butter, lard). However, it contains a unique type of medium chain saturated fat called lauric acid that research shows raises HDL or "good" cholesterol levels, which may lower overall heart disease risk. It has a moisturizing effect when applied to the skin. People commonly use coconut oil for eczema and growth in premature infants. It's also used for psoriasis, obesity, breast cancer, heart disease, and many other conditions, but there is no good scientific evidence to support these uses.

Rose (*Rosa damascene*)



Rose water contain vitamin B. which often used in Sunscreen and sun product. It helps to bolster the effectiveness of SPF. Rose water can be used to lighten the skin pigmentation. Rose water can remove oils and dirt from your skin by unclogging yours pores. It helps to maintain pH level of your skin. It is hydrating and nourishing agent for skin and protect skin against harmful environmental aggressors, Gulabjal has antioxidant levels that tackle free radicals and keep skin healthy and glowing.

Green Tea (*Camellia sinuses*)



Green tea is packed full of health-promoting compounds. Regularly drinking green tea can help you lose weight and reduce your risk of several diseases, including diabetes, heart disease and cancer. Drinking three to five cups of green tea per day seems to be optimal to reap the most health benefits.

General Method:

- This preparation is binary compound or oily answer, cream or emulsion lotion and gel sort, the final technique are going to be different. Answer sort binary compound or oily is ready sampling and mix and dissolving the sun blocker and other ingredients within the vehicle i.e., water or oil perfume should be more the whole last.
- Cream preparation and emulsion sort and square measure ready by taking ingredients of oil part and binary compound part separately and heating to liquefy or dissolve all ingredients and then mix them in conjunction with continuous stirring until the cream is made perfume ought to be more when cooling the cream to close temperature and edge further.
- Lotion is answer and emulsion sort and may be prepared consequently gel square measure high viscous binary compound preparations. Thickening agent is distributed in water separately. Alternative ingredient square measure mixed along and dissolved in water then the dispersion of thickening agent is mixed with alternative with stirring to arrange gel

MARKETED PRODUCTS OF NATURAL SUNSCREEN

Marketed products	Active Ingredients	Formulation	Benefits	Name of Company
Mamaearth Hydragel Indian Sunscreen	Aloe vera Raspberry Glycerine	Hydragel	<ul style="list-style-type: none"> • Protect against UV-A & UV- B rays. • Provides hydration. 	Honasa Consumer Pvt Ltd
Lotus Herbal	Tomato Glycerine	Cream Gel	<ul style="list-style-type: none"> • Promotes elastin and collagen • Enhances blood circulation • Neutrilises free radical 	Lotus Herbals Pvt. Ltd.
Bio Sandalwood Sunscreen Lotion (120 ml)	Sandalwood Ashwagandha Honey	Lotion	<ul style="list-style-type: none"> • Protect against UV rays. • Intense moisturization and hydration. • Reduces Sun burn and Tan. 	Greenberry Organics
Patanjali Sunscreen	Aloe Cucumber Almond oil	Cream	<ul style="list-style-type: none"> • Hydration and Moisturization. • Protect skin from UV rays. 	Patanjali Ayurved Ltd

Age Prevention SPF 45 Anti-aging Moisturizing Sunscreen (50ml)	Sacred Lotus	Cream	<ul style="list-style-type: none"> • Protect against UV- A & UV- B rays. • Maintain skin tone. 	Mitchell USA
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Table 4. Marketed Products of Natural Sunscreen

CONCLUSION

From long back, the use of chemicals in sunscreens as photo protective agent in the formulation is a common practice. Owing to their harmful effects, they are becoming less popular now a day. The use of natural sunscreen has been gaining significant attention of researchers due to their safety, multiple biological actions on the skin and cost effectiveness. The current study aimed to create a stable herbal sunscreen with a suitable SPF. It can be stated that the current study will hopefully lead to improvements in the treatment of sunburns produced by UV radiation exposure. The study also demonstrates that UV Spectroscopy is the most efficient, acceptable, and repeatable approach for determining the performance of herbal sunscreens. The study attempted to develop herbal sunscreen cream using aloe vera, almond, coconut, etc. and examined their efficacy for preventing sun burn.

Herbal Sunscreen Cream was successfully developed that met the relevant pharmaceutical characteristics. The herbal sunscreen cream showed proper pH range that is approximately pH 7.3. Due to use of aloe vera gel sunscreen cream gives cooling effect to the skin.

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