

# **Review on Herbal Sunscreen**

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**Abstract:** *UVB light exposure has a deleterious effect on keratinocytes through DNA damage, which can develop into malignant transformation. The immediate UVB-induced death of injured cells is the first step in the cellular defence systems against this injury. Cell-cycle progression can occur in less severely damaged cells be stopped, and nucleotide excision repair (NER) can reverse DNA damage. Cells will live if healing is successful and there hasn't been any lasting harm. When proper healing is not performed, keratinocytes undergo apoptosis, resulting in the formation of distinct "sunburn cells." A sunscreen is a chemical that shields the skin from the sun's UV rays when exposed to it for prolonged periods of time. Because sunscreens can prevent UV-induced sunburns (known as the sun protection factor, or SPF), using them is frequently advised for sun protection. It lessens the negative effects of the sun, such as skin cancer and early aging of the skin, and helps avoid sunburn. Humans are regularly tested on them, and they can be given a sun protection factor (SPF) that indicates how well they can ward off sunburn. There are several types of sunscreens available, including cream, lotion, gel, stick, spray, and lip balm. They can only be used externally.*

**Keywords:** SPF, polyphenols, sunscreen, and sunburns

## **I. INTRODUCTION**

Sunscreen is increasingly being used as a photo-protective agent to defend against UV rays. A formulation is referred to as a sunscreen preparation.

It prevents sunburn on the treated region when applied topically. Sunscreens are used to support the body's defensive mechanisms against UV radiation from the sun, which can be damaging. Its capacity to absorb, reflect, or scatter solar radiation determines how it functions. The calculation of a sunscreen's Sun Protection Factor (SPF) involves comparing the duration required to create sunburn on skin protected by sunscreen to the duration required to cause sunburn on skin that is not covered by sunscreen.

The efficacy of sunscreens to prevent UV-induced sunburns and their chemo preventive activity determine how effective they are.

### **Types of Herbal Sunscreen**

Sunscreen products come in a variety of forms that can be produced to meet demand worldwide (oils, sticks, gels, creams, lotions). Each of them needs to use sunscreen that provides adequate defence against harmful UV radiation. Chemical and physical sunscreen are two fundamental types. While physical sunscreen reflects harmful UV rays away from the skin, chemical sunscreen prevents UV radiation.

### **Physical sunblock**

The two most common forms of physical sunblocks are zinc oxide and titanium dioxide.

Broad-spectrum UVA and UVB shielding is included in both. They're gentle enough for day-to-day usage because they rarely trigger skin irritation, especially for persons with sensitive skin and for toddlers.

### **Chemical Sunblock**

As a result, most chemical sunblocks are made up of many active compounds that, when combined, block distinct UV radiation wavelengths, primarily in the UVB region. which have the ability to inhibit UVA radiation. The ideal sunscreen formulation is sunscreen's, which combines chemical and physical active ingredients.

**Herbal Plants used in Herbal Sunscreen:**

**Aloe Vera:**



Fig.No. 1

**Botanical name:-** Aloe barbadensis miller.

**Biological source:-** dried juice collected by incision, from the bases of the leaves of various species of Aloe

**Family:-**Asphodelaceae (Liliaceae)

**Uses:-**

- To moisturize, soothe, and nourish the skin.
- It can also help treat sunburn, rashes, and redness.
- Aloe vera's cooling and hydrating properties can soothe irritation and help heal sunburns.

**Pomegranate:-**



Fig.No.2.

**Botanical name:-**Punica granatum.

**Biological source:-** The pomegranate (Punica granatum) is a fruit-bearing deciduous shrub in the family Lythraceae,

**Family :-** Punicoideae

**Uses:-**

- Pomegranate's antioxidants may help prevent skin cancer.
- Pomegranate may help relieve sunburn.
- Pomegranate contains vitamin C, which helps reduce dark spots and hyperpigmentation

**Saffron:-**

**Botanical name:-** Crocus sativus L

**Biological source:-** dried stigmas and styles of the Crocus sativus flower



Fig .No.3 .

**Family:-** Iridaceae

**Uses:-**

- It has antioxidant properties and can absorb UV rays from the sun:
- Saffron can reduce the appearance of fine lines and wrinkles.
- Saffron has antibacterial and anti-inflammatory properties that can help treat acne-prone skin.

**4.Almond:-**



Fig. No.4

**Botanical name:-** Prunus dulcis (Mill.

**Biological source:-** Almond oil is a fixed oil obtained by expression from the seeds of Prunus amygdalus (Rosaceae) var. dulcis (sweet almonds), or P. amygdalus var. amara (bitter almonds).

**Family:-** Rosaceae

**Uses:-**

- Almond oil has moisturizing properties and is often used in creams and bodylotions.
- Almond oil can hydrate and rejuvenate skin during and after sun exposure
- Almond oil contains antioxidants and vitamin E, which may help reducedamage from UV exposure.

**Cucumber**



Fig No 5

**Botanical name:-** Cucumis sativus L.

**Biological source:-** The cucumber is an annual plant with trailing or climbing stems that can grow up to 5 meters long. It has simple, alternate leaves and unisexual flowers.

**Family:** Cucurbitaceae

**Uses:**

- Cucumber can help protect skin from environmental stressors like sun exposure.
- Cucumber can help remove sun tan
- Cucumber can keep skin cool and hydrated.

**Green Tea :-**



Fig .No. 6

**Botanical name:-** Camellia sinensis

**Biological source:-** Black tea, green tea, and oolong tea are all made from the same plant but are prepared using different processing methods. Green tea extract contains polyphenols.

**Family:-** Theaceae

**Uses**

- antioxidant properties that help protect skin from sun damage:
- Green tea can help reduce sunburn and the number of sunburn cells.
- Green tea serums can help reduce the appearance of fine lines and wrinkles

**Method of preparation**

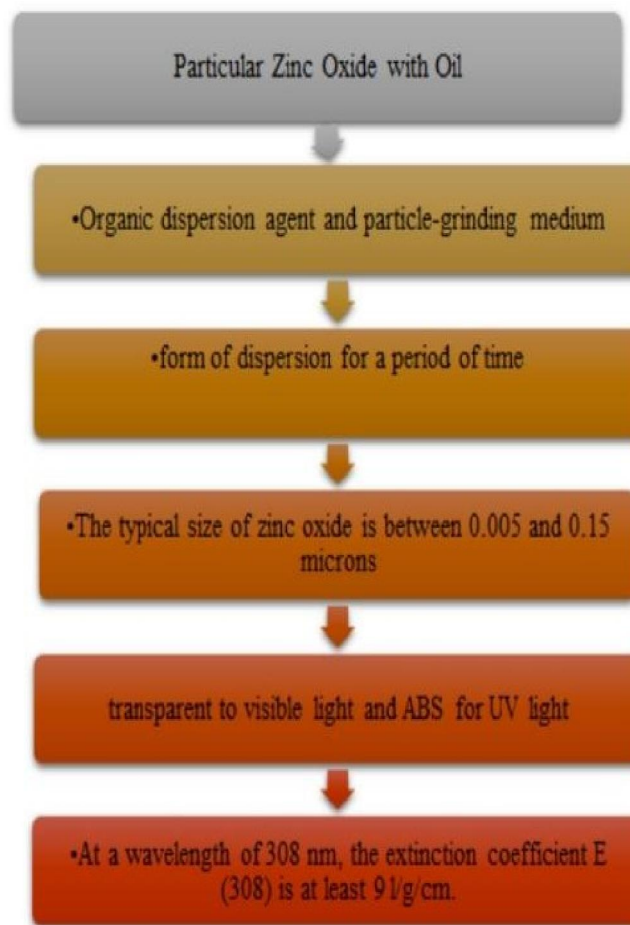


Fig No.7



Evaluation test for Herbal Sunscreen:-

Parameters	Formulation I	Formulation II	Formulation III
Appearance	Smooth, Opaque	Smooth , Opaque	Smooth , Opaque
Color	Pale Yellow	Pale Yellow	Pale Yellow
Consistency	Good	Good	Good
Texture	Smooth	Smooth	Very Smooth
Irritation	Non	Non	Non
Spread ability	Good	Good	Good
Extrudability	Fair	Good	Good
pH	7.3	7.2	7.1
Rancidity	No Pink color	No Pink color	No Pink color
Viscosity	28408	28540	30200
SPF by UV	21.35	27	34

Fig.No.8

## II. CONCLUSION

Chemicals have been used as photoprotective agents in sunscreen formulations for a very long time. Because of their negative consequences,

These days, they are losing favor. Because of their cost-effectiveness, numerous biological effects on the skin, and safety, researchers have been paying close attention to the use of natural sunscreen. The best ingredient for sunscreen formulations is a plant's phytoconstituents because of its additive qualities. The broad spectrum of UV absorption and the preventive impact against oxidative stress, inflammation, and cancer make plant actives superior than artificial sunscreens.

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