Formulation And Evaluation Of Herbal Suncreen Cream Using Butterfly Pea Flower

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Abstract- *Sunscreen is a chemical compound that help protect you from UV rays sunburn is caused by ultraviolet B radiation but ultraviolet a may be more damaging to the skin. Sunscreen should ideally block both wavebands. The aim of this study was to develop herbal topical sunscreen formulation based on some fixed oils , in combination with some medical plants. Regular use of sunscreen reduces the development of actinic keratosis , squamous cell carcinoma and melanoma . Sunscreen may be organic or inorganic chemicals . Sunscreen is also known as sunblock lotion.*

The product that absorb or reflect the suns ultr aviolet radiation and protect the skin. The increasing incidence of skin cancers and photo damaging effects caused by ultra - violet radiation has increased the use of sunsreening agents, which have shown beneficial ef- fects in reducing the symptoms . Sunsreening agents should be safe chemically inert , non irritating non toxic , photo stable an able to provide complete protection to the skin against damage from solar radiation.

Keywords: Arduino Uno, Automated Billing, Computer Vision, GSM Module Image Processing, IoT,RFID Technology, Smart Parking, Embedded Systems, Smart City Infrastructure.

I. INTRODUCTION

Herbal sunsreen also known herbal sunblock. Herbal suntan lotion is a lotion ,spray or other topical product that helps protect the skin from the suns uv radiation and

which reduce sunburn and other skin damage Sunscreen can be classified into two types sun - screen. (1)

1) Physical sunscreen:

Those that reflect the sunlight.

2) Chemical sunscreen:

Those that absorb the UV light.

Herbal Sunscreen (also known as Herbal sunblock, Herbal suntan lotion) is a lotion, spray or other topical product that helps protect the skin from the sun's ultraviolet (UV) radia- tion, and which reduces sunburn and other skin damage, with the goal of lowering the risk of skin cancer with the help of herbes. (3) However, in the United States, the term suntan lotion usually means the opposite of sunscreen, and instead refers to lotion designed to moisturize and maximize UV exposure and tanning rather than block it. These are commonly called indoor tanning lotions when designed for use with tanning beds or just suntan lotion if designed for outdoor use and may or may not have SPF protection in them. (4)

ADVANTAGES:

- Easily available. No irritation
- No special equipment needed for preparation. No side effect.
- Renewable resources.
- Botanical ingredients are easily available. They are inexpensive

PROTECTION:

It is vital to protect skin and eyes from the damaging effect of the sun be- cause exposure to ultraviolet radiation contributes to ageing skin and is the main cause of skin cancer.(6) Some people may need to take particular care because of photosensitivi- ty. You should also be careful to protect your skin if you are at high altitude in any season, particularly when in the snow because it reflects extra ultraviolet radiation onto your skin.(7)

CHARACTERISTICS:

1) Be stable to heat;’ light and perspiration
2) Be non-toxic and non-irritant
3) Not be rapidly absorbed
4) Be rapid soluble in suitable vehicle
5) Be neutral

Classification of Sunscreen Cream:

sunscreen are classified as either topical or systemic based on the route of admin- istration topical sunscreen are divided into two classes on their mechanism of protection

1. Organic sunscreen
2. Inorganic sunscreen

1. Organic Sunscreen:

Oragnic sunscreen works by absorbing into skin and converting UV rays in- to heat .it is thin and ideal for everyday use allow for skincare ingredients to be added easily. Organic sunscreen actives chemical carbon based compound .it containsnon mineral active ingredient.(8)

2. Inorganic sunscreen:

These are particles that scatter and reflect uvrays back to the environment they act as physical barrier to indent ultraviolet and uv light .they are considered broad spec - trum as they cover entire ultraviolet spectrum .the Inorganic sunscreen are also referredto as sunblock .(10)

Ideal properties of herbal sunscreen cream:

- Must absorb a broad rang of UV rays cousing sunburn • most be stable in the presence of sunlight
- should be abal to providecomplete protection of skin • should not be easily washed away with water
- should be safe ,effective ,chemicaly inert at law concentration
- should not couse irritation

Benefits of herbal sunscreen:

- Reduce risk of skin cancer • Protect against sunburn
- Maintain the look and texture of your skin • Delays premature signs of aging
- Reflects UVA and UVB rays
- Avoid inflammation and redness
- Avoid blotchy skin and hyperpigmentation • Stop DNA damage
- Prevent the early onset of wrinkles and fine lines • Lower skin cancer risk
- Shields from harmful UV rays
- Maintain the brightness of your natural complexion
- Works immediately when applied on the skin.

Development of sunscreens:

The development of sunscreens requires a thorough understanding of the anatomy and physiology of the skin as well as the physical-chemical properties of the substances that one intends to include in the formulation. The stability of the organic sub - stances and the excipients need to be examined as some exhibit instability on exposure to the UV. (11)

AIM AND OBJECTIVE:

AIM: <Formulation and Evaluation of Herbal Suncreen Cream Using Butterfly Pea Flower=

OBJECTIVE:

- Reduce risk of skin cancer • Protect against sunburn
- Avoid inflammation and redness
- Avoid blotchy skin and hyperpigmentation • Stop DNA damage
- Prevent the early onset of wrinkles and fine lines • Lower skin cancer risk
- Shields from harmful UV rays
- Maintain the brightness of your natural complexion

PLAN OF WORK:

LITERATURE REVIEW :

1. **Miss. Waghmode Monika** Vasant Prof.Khade. P. Published: January 2016

Herbal sunsreen also known herbal sunblock .Herbal suntan lotion is a lotion ,spray or other topical product that helps protect the skin from the suns uv radiation and which reduce sunburn and other skin damage Sunscreen can be classified into two types sun- screen.

2. **Rajendra Jangde and S. J. Daharwal** Published In: Volume - 2, Issue - 2,Year - 2011

University Institute of Pharmacy Pt. Ravi Shankar Shukla University Raipur (C.G.) 492010

Herbal Sunscreen: An Overview

Herbal Sunscreen (also known as Herbal sunblock, Herbal suntan lotion) is a lotion, spray or other topical product that helps protect the skin from the sun's ultra- violet (UV) radiation, and which reduces sunburn and other skin damage,

with the goal of lowering the risk of skin cancer with the help of herbes.

3. **Amit Roy,Ram Kumar Sahu** First Published: 26 April 2015volume 2015 page 225 - 255

Researchers have reported the present study was to formulation and devel-opment of herbal sunscreen cream containing extracts of plant materials. The evaluation of cream was done on different parameters like pH, viscosity, spreadibilty, and stability were examined. The prepared herbal sunscreen creams was safe to use for skin.

5. Sharada Laxman Deore,

Department of Pharmacognosy and Phytochemistry, Government College of Pharmacy, Amravati-444604,

Evaluation of sunscreen activity is an important aspect in the cosmetic indus- try, as exposure to sunlight is a recognized as a major factor in the etiology of the progressive unwanted changes in the skin appearance and physiology due to UV rays present in the sun - light.

6. Vaishali Bambal*, Neha Wyawahare, Ashish Turaskar and Manisha Mishra Volume 11, Issue 1, November–December 2011; Article-027

aim of the present study was to evaluate the sunscreen activity of Herbal cream containing flower extract of Nyctanthes arbortristis L. (Oleaceae) and Tagetes erecta L. (Compositae). The shade dried flowers were extracted successively with petroleum ether and ethanol in soxhlet apparatus. Two different sunscreen creams were formulated using eth - anolic extract and tested for the pysicochemical parameters such as colour, odour, spreadabil- ity, pH, specific gravity, limit test for lead and viscosity.

Material and Method

Main role of ingredients used in formulation:

- **Aloe vera**
- **Coconut oil • Rose water**
- **Vitamin E Capsule**
- **Butterfly Pea Flower**

1. ALOE VERA :

Synonyms: Aloe, Musabbar, Kumari.

Biological Source : Aloe vera is the dried juice of the leaves of the plant Aloe vera (L. **Family:** Liliaceae.

Aloe vera is a good active ingredient to reach in Sunscreen arsenal.it has been proven to both treat and prevent burns on your skin .the leaves of aloe vera and A. Barba - densisare the source of aloe vera gel .aloe vera gel is used in cosmetics lotion for its moistur- izing and revitalizinaction .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 help relieve pain and redness by reducing inflammation .the gel also stimulate the production of collagen which help the healing pro- cess.

2. COCONUT OIL :

family : Palmae
Synonyms : Coconut oil, coconut butter, copra oil.
Biological Source: Coconut oil is the oil expressed from the dried solid part of endosperm of coconut, *Cocos nucifera* L .

Coconut oil keeps the skin soft and smooth while preventing premature ageing of the skin . coconut oil for skin use as a moisturizer ,remove dead skin cells.coconut oil moisturizing dry skin including in people with condition such as eczema.promoting wound healing it have antibacterial ,antifungal and antiviral properties which prevents free radicals from causing damage to the skin . coconut oil has anti-inflammatory properties which reduce redneeson skin this can be helpful for both dry and oily skin conditions by reducing inflam - mation of the skin.

3. ROSE WATER :

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 pigmenta - tion.Rose water can remove oils and dirt from your skin by unclogging yours pores. It helps maintain pH level of your skin .It is hydrating and nourishing agent for skin and protect skin against harmful environmental aggressors,gulabjal has antioxidantlevels that tackle free radi- cals and keep skin healthy and glowing.

4. VITAMIN E CAPSULE :

Vitamin E it provides extra protection against acute UVB damage and protect against cell mutation caused by sun and pollution exposure.vitamin E it help cleanse your skin and removing the impurities from and help improve skin elasticity .vitamin E combination with lemon juice it help to whiten the skin.it is most commonly known for its benefits of skin health and appearance.it has antioxidant and anti-inflammatory properties..

5. Butterfly Pea Flower :

SYNONYMS : Blue pea ,Clioria ternatea (scientific name)

Biological source : Butterfly Pea Flower is the dried flowers of the plant Clitoria ternatea Linn., **FAMILY : Fabaceae**

Butterfly pea flower contain many antioxident such as flavonoids authocyanin and Polyphenols . youe skin needs antioxident to improve general health and elasticity. Antioxident Helps to minimize fine line and improve your skin and apperance .

Butterfly pea flower it helped calm itching and general irritation . Reduce redness Because of butterfly pea flower ability to soothe irrited skin it also minimize redness caused by acne and general irritation. Improve the skin barrier

Butterfly Pea Flower

6 . Glycerine :

Glycerine,also known as glycerol, is versatile compound with various application In pharmaceutical formulation and cosmatics.it used as moisturizer and protection of Skin .it used as a preservative .

Formulation of sunscreen cream was prepared by following procedure:

Extract Butterfly Pea Flower :

Tomakean extract of butterfly pea flower for her balsum screen .take dried flower leaves trituateusingmortal and pestel andweight4gm leavesandboil15-20min water bath then cool it and filter The deep blue liquid obtain to be used in sunscreen cream

Extraction test:

FINALPRODUCT:

C) Spredability test:

We know the formula

S =M* L/T Where,

M= weight (in gram) tied in upper slide

L= length of glass

T= time in sec (how much time cream will be spread) We know formula

S= 1*7.5/4 =1.8

D. HOMOGENEITY:

The formulations were tested for the homogeneity by visual appearance and by touch.

Appearance:

The appearance of the cream was judged by its color, pearlscence and roughness and graded.

E.REMOVAL:

The ease of removal of the cream applied was examined by washing the applied part with tap water.

F . IRRITANCY TEST:

The cream was applied to the specified area and time was noted. Irritancy, ,was checked if any for regular intervals up to 24hrs and reported.

G. TYPE OF SMEAR:

After application of cream ,the type or film or smear formed on the skin were checked .

RESULT :

To be effective in preventing sunburn and other skin damage ,a sunscreen product should have a wide range of absorbance .during the storage and handling of cosmetic formu - lation spreadability and viscosity are the prime parameter which affects the formulation ac- ceptability.the formulated cream exhibited no redness, inflammation and irritation .when formulation were kept for long time ,it found that no change in colour of cream .The cream was easily removed by washing with tap water .

SUMMARY AND CONCLUSION:

It can be concluded that there is great market potential for sunscreen in-gredients natural due to awareness of protection from hazardous UVA as well as UVB rays. their is long term beneficial These natural chemicals incorporated sunscreens might provide cost effective, truly broad spectrum sunscreen with anti-oxidant, wound healing, anti-inflammatory and many more skin protective effects. Quality evidence has shown that some natural sunscreen ingredients are systemically absorbed and may be contributing to environmental damage people who are concerned may consider using physical sunscreens as an alternative.Research on the safety and efficacy of established sunscreens and novel agents is ongoing.

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Annexure:

MES's COLLARMACY, SONAI. 31
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