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ANTI- INFLAMMATORY GEL FROM PARTHENIUM HYSTEROPHROUS LINN

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Abstract: -

The ayurvedic system of traditional Indian medication is aside to be 5000 yr. old and still used today. 8000 natural medicines are mentioned in Indian traditional medicine. In India from ancient herbs plays the important role in medication therapy and used for the prevention and treatment of disease, illness. Number of herbs are used by people for cure the illness. The whole plants or parts of plants like stem, roots, flowers, fruits have active ingredients which shoe the particular therapeutic value and useful in treatment, cure, prevention of various diseases. Herbal medicines are natural medicines many people believes that herbal medication is safe medication. This research is helpful to formulate herbal cream for treating inflammation by using Parthenium hysterophorous L. the anti-inflammation herbal gel was prepared. After performing different evaluation tests, we can see that there were no evidence of phase separation and color variation, no skin irritation, inflammation and allergic reaction so, this cosmetic preparation of herbal gel is safe to use for skin.

Keywords: anti-inflammation, herbal inflammation, herbal.

Introduction

Immunity is the response of the immune system to harmful stimuli, such as pathogens, damaged cells, toxic compounds, or radiation, and acts to remove harmful stimuli and initiate healing [2]. Therefore, inflammation is an important defense mechanism for health [3]. In general, cellular and molecular events and interactions during the acute inflammatory response effectively reduce future injury or infection.[4] Abnormal activation of certain enzymes, including high mobility group box 1 (HMGB1), superoxide dismutase (SOD), glutathione peroxidase (GPx), NADPH oxidase (NOX), inducible nitric oxide synthase (iNOS), and cyclooxygenase (COX)-2, play a key role in the development of inflammation-related diseases such as cardiovascular disease and cancer [5]. The first line treatment for inflammatory pain is the use of nonsteroidal anti-inflammatory drugs (NSAIDs) that inhibit cyclooxygenase (COX), which produces hyperalgesic prostaglandins.[6] Recently, many innovative uses of this hitherto notorious plant have been discovered. Parthenium hysterophorus provides many health benefits, including a cure for skin inflammations, rheumatic pains, diarrhea, urinary tract infections, dysentery, malaria, and neuralgia.[7] The presence of oil, polyphenols, flavones, flavonoids, alkaloids, terpenes, pseudoguaianolides and histamine in P. hysterophorus makes it important and useful for its medicinal properties.[8] Parthenium hysterophore extract contains Luteolin, Parthenolide, Patenolide, Reinosin, Santamarin, etc. , they may contribute to the anti-inflammatory activity of histamine, serotonin, kinins, and prostaglandins.[9] that's the current study intended for the formulation and evaluation of herbal gel anti-inflammatory formulation containing ethanol extract of *parthenum hysterophorus* leaves [10]

Method and methods

1. Therapeutic agent: an active pharmaceutical ingredient (API), an over-the-counter (OTC), or an ingredient in a prescription drug that has an intended health effect.[11]
2. Gelling agent: Gelling agents are used to provide a three-dimensional structure network with high physical / chemical bonding to produce semiconductor systems when dispersed or dispersed in suitable media.[12]
3. Moisturizing agent: Moisturizer is a key component of daily skin care when the epidermal barrier changes and the epidermal water content decreases. Protecting skin health is an important part of the dermatologist's strategy to treat various dermatoses associated with dry skin and associated with skin barrier dysfunction, such as atopic dermatitis and other types of dermatitis.[13]
4. Surfactant: for example, Triethanolamine lowers the surface tension of liquids, making it easier to mix with other liquids, even solids or gases.[14]
5. Viscosity modifier: Excipients are designed to change the thickness or texture of pharmaceutical products material. Exfoliating agents can include products such as thickeners, texturizers, and emulsifiers agents and stabilizers.[15]
6. Preservative: Preservatives are the ingredients that are utilized in order to improve the shelf life of products (Medicines, food). These tend to slow down or stop the degradation or decomposition processes, therefore, enhance the shelf life of the products.[16]
7. Humectant: A humectant is a substance that draws moisture from the air. Antioxidants help prevent skin dryness and irritation. It helps keep the skin soft and supple by holding water inside the skin [17].
8. Drug vehicle: Narcotics, also known as narcotics, are substances that regulate the release of intoxication. It can prolong the release of the drug or the release at a specific target site.[18]

Evaluation of Gel: -

A) Physical Properties: - In physical properties the color, odor, appearance and consistency were observed.

1. Color: - The color of gel was observed by visual observation i.e., light green color

2. Odor: - The odor of gel was found to be characteristics.

3. Appearance: -The appearance of gel is examined by visual examination. The gel having viscous, transparent

4. Consistency: -The gel was examined by rubbing it on hand. The gel having a smooth consistency.

Sr no.	Properties	Observation
1	**Color**	Light green
2	**Odor**	Characteristics
3	**Appearance**	Jelly
4	**Consistency**	Smooth

B) Stability study

The stability testing is assed as ICH guidelines. In this study the formulation is kept in proposed pack. Keep it away from the light [19].

Test	**After one month**
Physical appearance	jelly
Texture	smooth
Color	Light green
Odor	Characteristics
PH value	5.58
Thermal stability	Stable
Degradation of product	No

C) Determination of PH: -

In a beaker 2 gm of gel was accurately weighed. then add 10 mi water and gel is dispersed in it. For PH determination of gel digital ph. meter was used.

Sr. no	**Test**	**Observation**
1.	PH	5.58

D) Credibility test: -

The amount if fixed gel is applied to the surface of skin by spread it by using hand and properties are observed

E) Wash ability

The gel was applied on skin and remove gel by washing it with tap water

F) Patches test

The 2 gm of gel was taken and apply to the infected area. After 24 hrs. he area of patch is observing after 24 hr.

Result: - No irritation and any inflammation to the skin

G) Irritancy: -

The gel is applied to the skin. Wait for few minutes and study the effect.

H) Viscosity: -

The viscosity of gel is measured by using digital viscometer. the viscosity of gel is 2160.1 maps [20]

Result: -

The herbal medication has very wide effect. In many countries herbals are used for effective health. Due to this there is lot of demand of herbs and more research is carried out in this field.

1. The evaluation test of gels is carried out using different parameter like appearance, ph., nature. The study of this parameters after one month help to study stability of gel.

2. The ph. of prepared gel was about 5.58 which is suitable for the topical application.

3. After performing the various tests like irritation, patch test gel does not show any redness,

Irritation, inflammation that means gel is safe for use on skin.

Conclusion: -

Now a days on large number the cosmetics are used in personal care by peoples. The researchers are focus on the therapeutic effect of herbal extract for cosmetic purpose. Herbal cosmetics are considered as a safe and effective for use. The active ingredients in formulations provide nutrition to skin to become healthy. The prepared anti-inflammatory gel shows good spread ability and consistency. It does not show any evidence of phase separation. The appearance, ph., odor, color, nature of gel shows that there is no variation during observational study.

Reference:-

1. Medzhitov R. Inflammation 2010: new adventures of an old flame. *Cell.* 2010;140:771–776
2. Ferrero-Miliani L, Nielsen O, Andersen P, Girardin S. Chronic inflammation: importance of NOD2 and NALP3 in interleukin-1β generation. *Clin Exp Immunol.* 2007;147:227–235.
3. Nathan C, Ding A. Nonresolving inflammation. *Cell.* 2010;140:871–882.
4. Linlin Chen,#1 Huidan Deng,#1 Hengmin Cui,1,2 Jing Fang,1,2 Zhicai Zuo,1,2 Junliang Deng,1,2 Yinglun Li,1,2 Xun Wang,1,2 and Ling Zhao1,2
5. SA Antar, AM Mahmoud, W Abdo, C Gad… - Pharmaceutical …, 2023 - ps.tbzmed.ac.ir
6. Botting, R.M., Botting, J.H. Pathogenesis and Mechanisms of Inflammation and Pain. Clin. Drug Investig. 19 (Suppl 2), 1–7 (2000). https://doi.org/10.2165/00044011-200019002-00001
7. Harmful and beneficial aspects of Parthenium hysterophorus: an update Seema PatelPMID: 22558530 PMCID: PMC3339593 DOI: 10.1007/s13205-011-0007-7
8. Pharmacological Chemistry and Biomedical Implications of Chemical Ingredients from Parthenium hysterophorus by Jyotsna Jaiswal , Nitika Singh , Vivek Kumar Gupta , Pawan Kumar Doharey , Nikhat Jamal Siddiqi , Bechan Sharma
9. Evaluation of Anti-Inflammatory Activity of Parthenium Hysterophorus [Congress Grass]: An Experimental Study in Rat Models. (Carrageenan-Induced Paw Oedema Model) Vipin Jain, Kawale SK, Sushil Kumar Varma, Megha Jain, Tiwari S
10. Formulation and Evaluation of an Herbal Anti-Inflammatory Gel Containing Eupatorium Leaves Extract Arvind Negi1 *, Nimisha Sharma1 , Mamta F. Singh
11. What Is an Active Pharmaceutical Ingredient (API)? By Kathlyn Stone Updated on July 28, 2023
12. Pharmaceutical excipients by Heeshma Shah, ... Divya Prabhudesai, in Remington (Twenty-third Edition), 2021
13. The Role of Moisturizers in Addressing Various Kinds of Dermatitis: A Review Schandra Purnamawati, MD,[*†] Niken Indrastuti, Dr,[*] Retno Danarti, Dr,[*] and Tatan Saefudin
14. https://www.bellchem.com/news/triethanolamine-uses-in-skin-care-products#:~:text=Surfactant,even%20a%20solid%20or%20gas.
15. Herbal excipient by Santosh Bhadkariya https://www.jiwaji.edu/pdf/ecourse/pharmaceutical/Herbal%20excipients.pdf
16. Preservatives in Pharmaceuticals: Are They Really Safe? Mohit Kumar , Shruti Chopra , Uttam Kumar Mandal ,Amit Bhatia
17. https://www.esteemindia.com/humectants.php#:~:text=A%20humectant%20is%20a%20substance,natural%20while%20others%20are%20synthetic.
18. Advanced drug delivery systems in oral cancer Subha Manoharan, ... Dinesh Kumar Chellappan, in Advanced Drug Delivery Systems in the Management of Cancer, 2021
19. A Review on Pharmaceutical Gel by Hemendrasinh Rathod Gujarat Technological University,Dhruti Mehta Gujarat Technological University
20. Formulation and evaluation of topical anti-inflammatory herbal gel mahendra a giri,rasika d bhalke