



A Research on Formulation and Evaluation of Herbal Gel

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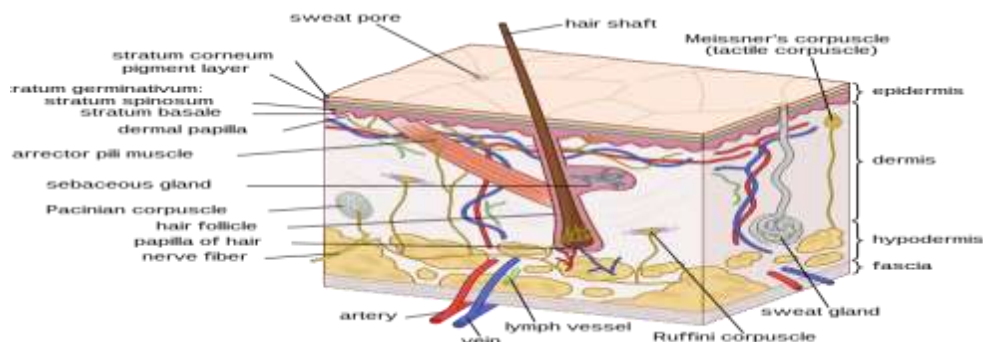
ABSTRACT

Gel is solid or semi-solid containing at least two or more components is called gel. The present research paper has been done under aim to formulate and evaluate the natural herbal Multipurpose gel. Multipurpose gel containing aloe vera and turmeric extract is used. Aloe vera Extract is obtained from aloe vera leaf and turmeric is obtained from rhizome. Aloe vera (aloe Barbendies miller) family (Liliaceae) aloe vera contain vitamins, enzymes, emollient, minerals, Sugar, anthraquinone, purgative, antiseptic property. Turmeric obtained from curcuma longa and It's family is zingiberaceae. Turmeric contain yellow polifinolic pigment from curcuma longa. A Turmeric contain antioxidant, anticancer, neuroprotector, heteroprotector property. Herbal Cosmetic is known as natural cosmetic In this preparation many ingredient uses like aloe vera Extract, turmeric extract, vit e tablet ascia, agar, glycine sodium benzoate, glycerin rose water And rose oil .This ingredients play the important role. the primary purpose to developing the herbal Gel is to promote the personal hygiene . It can be equally important to skin and hair.

Key word – aloe vera extract, turmeric extract, acacia , vit c, glycerin, rose oil etc.

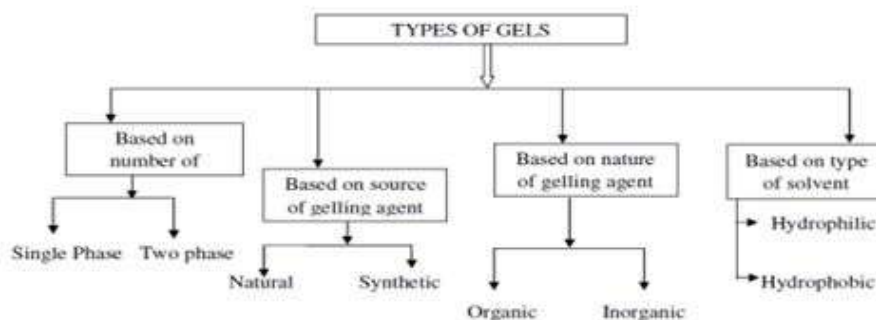
INTRODUCTION:

The aim of this investigation is development and of herbal gel which gives therapeutic effect without Causing any side effect by natural ingredient. This gel is prepared by using aloe vera extract , turmeric Extract , glycerine, agar agar or gum acacia , vitamin c, vitamin E, hyaluronic acid , rose water , tea tree Oil. The evaluation test is performed on formulated or prepared gel such as physical appearance , pH ,spread ability ,skin irritation to observe toxicity or any other side effect. The spreadability test is helpful To indicate that these herbal gel were easily spread able by small amount of shear .By using the Brookfield viscometer the viscosity of herbal gel is determined . The frequently occurring health problem By number of ways is the skin diseases. In many people the skin disease is develop by many factors such as cancer,trauma, bacterial Infection. The skin harm by number of way in all age. The natural drugs from the plants having Inexpensive ,less side effect and acceptable. For treating the wrinkles , stretchmarks, pigmentation aloe Is more effective. The aloe vera also improve the blood circulation and treat the wound. The aloevera is Also act as an excellent wound healing agent. The rose water helps to control excess oil and also maintain the skin pH balance. Rose water help to Reduce the redness of irritated skin,acne and also act as an anti inflammatory agent. The multipurpose Gel is used to treat various skin problem. To reduce the rashes, redness, dry skin and irritation ,heal Aloevera and turmeric .



GELS:-

Gels In Pharmaceuticals are Homogeneous, Semisolid preparations usually consisting of solutions or dispersion of one or more medicaments in suitable hydrophobic and hydrophilic bases.



IDEAL PROPERTIES OF GEL:

1. Ideally, the gelling agent must be inert, safe and cannot react with other formulation constituents.
2. It should have suitable anti-microbial agent.
3. The topical gel must not be sticky.
4. The ophthalmic gel must be sterile.

ADVANTAGES OF GEL:

- Non-greasy application
- Being easy to formulate with active ingredients
- Adhering well to the application site
- Being washable and non-toxic
- Stability over time
- Ability to target affected area for rapid treatment and relief
- Preventing unwanted side effects through bypassing the digestive system
- Easy spreading

DISADVANTAGES OF GEL:

- Some drugs aren't absorbed easily through the skin
- There's a possibility of an allergic reaction
- The effect of gels initiates slower (but lasts longer)
- Additives in the gel may irritate the skin
- Application site must be monitored for reactions

METHODOLOGY:

A. DRUG AND POLYMERIC PROFILE :

1) **Aloe vera extract** :The aloe vera is the natural product . It is used in prevention and treatment of many diseases.

2) **Turmeric Extract** :The curcumin is a polyphenolic phytochemical of curcuma long. It belonging to the family zingiberaceae. The curcumin is an oil soluble pigment , practically water insoluble at acidic and neutral ph ,soluble in alkali. The melting point of curcumin is 175-180 c

3) **Glycerin**: Glycerin is also known as glycerol or glycerine . The glycerin has been a valuable ingredient for soap , cosmetic , producing food and pharmaceutical. The glycerol is a small molecule also that play a vital role in metabolism.

4) **Acacia** : Gum acacia which are obtained from branches and trunks of acacia species ,mainly acacia senegal and acacia seyal. Which is belonging to the family fabaceae . It is safe , natural compound .

5) **Vitamin C** : It is also known as ascorbic acid . Vitamin C are help to stimulate the collage synthesis and act as the antioxidant protection against UV induced photodamage Mostly vit c in skin appears intracellular compartment. Vit c found more in epidermis than in dermis.

6) **Vitamin E** : Vit e is a major lipid soluble vitamin .The vitamin E is discovered by Evans and Bioshop in 1992. It have a various important roles within the body due to its antioxidant activity. Vit E is effective in various possible condition and diseases such as aging , cancer etc.

7) **Hyaluronic acid** :

The hyaluronic acid is a naturally occurring polymer. It is discovered in 1934. It is used in wide range of medical field in cosmetic surgery. It is also for wound healing

8) **sodium benzoate** :

Sodium benzoate is used as a preservative . It is also used to preserve non alcoholic carbonated beverage . It is used as a preservative for inhibit yeasts, molds and other bacterial growth in many products.

B. Experimental Procedure:

Raw Material:

Curcuma longa (Turmeric) rhizome were collected from narayana brand variety consisting of 6% of curcumin.

Solvents: ethanol or acetone or hexane Apparatus: Soxhlet apparatus, measuring cylinder, Distilling flask

FORMULATION

The extraction requires the turmeric roots to be ground into powder by using Mortar. After that it is air dried to remove the moisture present in the feed or ground powder, And then a known amount of turmeric powder say 10 grams is weighed accurately and then it is washed or treated with suitable solvent like ethanol etc., in the extraction column To extract the solute or curcumin present in the turmeric powder for a desired time. And then Distillation is performed to separate the mixture of solvent and solute. It is performed just by Heating the mixture up to the boiling point of either solvent or solute here we heat up to the Boiling point of solvent because it is having low boiling point when compared to solute. The Oleoresin so obtained is subjected to further washes using selective solvents. Here we use Hexane as a solvent because it has high absorption coefficient. After washing has performed it.

Ingredients	Quantity given	Quantity taken	Category/ use
Aloe Vera extract	75 ml	22.5 ml	Protect sunburns
Turmeric Extract	7 ml	2.1 ml	Antibacterial
Acacia	0.5 gm	0.1 gm	Gelling agent
Vitamin E	1 ml	0.3 ml	Smoothness
Hyaluronic acid & vitamin c	2 ml	0.6 ml	Extend shelf life & reduce pigmentation
Glycerine	5 ml	1.5 ml	Moisturizer
Sodium benzoate	0.5 gm	0.15 gm	Preservative
Rose oil	1 ml	0.3 ml	Fragrance
Dist. Water	q.s. To be taken	q.s. To be taken	Vehicle

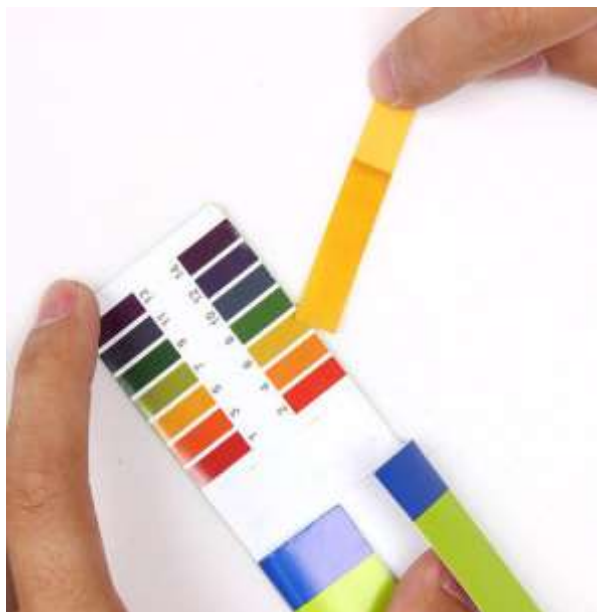
EVALUATION:

- Physical appearance:

The prepared gel formulations containing *Clerodendrum Serratum* were inspected visually for their color, homogeneity, consistency and phase separation.

► Measurement of pH:

The pH of the gel was checked with the help of the pH paper. The pH paper is dipped into this gel and suddenly removed from this gel, check the colour of this pH paper and compare this colour to the standard colour and to check the pH of our gel.



► Spreadability

Spreadability was determined by the apparatus which consists of a wooden block, which was provided by a pulley at one end. By this method spreadability was measured on the basis of slip and drag characteristics of gels. An excess of gel (about 2 gm) under study was placed on this ground slide. The gel was then sandwiched between this slide and another glass slide having the dimension of fixed ground slide and provided with the hook. A one kg weighted was placed on the top of the two slides for 5 min. to expel air and to provide a uniform flow of the gel between the slides. Excess of the gel was scrapped off from the edges. The top plate was then subjected to pull of 80 gm. With the help of string attached to the hook and the time (in sec.) required by the top slide to cover a distance of 7.5 cm be noted. A shorter interval indicates better spreadability. Spreadability was calculated using the following formula:

$$S = M \times L / T$$

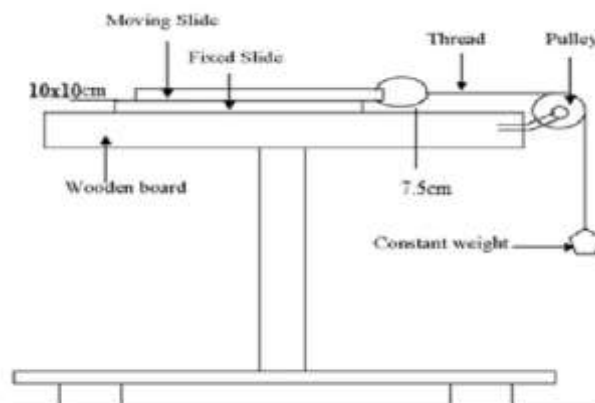
Where,

S= Spreadability,

M= weight in the pan (tied to upper slide)

L= Length moved by the slide,

T= Time (in sec.)



RESULT:

The present work aimed to the formulation and evaluation of herbal gel. The acacia is a natural gelling agent is used in this formulation. The prepared formulation was characterized by good or smooth physical appearance, pH spreadability, Viscosity and skin irritancy.

<i>Characteristics</i>	<i>Observation/ Result</i>
<i>Physical appearance</i>	<i>Smooth</i>
<i>pH</i>	<i>Close to the neutral (6.7)</i>
<i>Colour</i>	<i>Greenish yellow</i>
<i>Turbidity</i>	<i>Turbid</i>
<i>State</i>	<i>Semi-solid</i>
<i>Odour</i>	<i>Rose like</i>
<i>Spreadability</i>	<i>Good</i>
<i>Skin irritancy</i>	<i>No</i>

CONCLUSION:

- ▶ It can be concluded from the present investigation that proper selection of polymer and drug is prerequisite designing and developing a transdermal drug delivery.
- ▶ The alovera extract and turmeric Extract are used in the formulation of the herbal gel. This 2 extract are the main ingredients of this herbal gel formulation.
- ▶ The gum acacia is used as gelling agent . Because of this gelling agent the gel is formulated.The main polymer in this gel is the gelling agent gum acacia.
- ▶ The formulation of gel with acacia showed good homogeneity, no skin irritation, good stability and used as a Cosmetic product.
- ▶ However the acacia containing herbal gel proved and it showed the highest percentage of extrudability, good spreadability, and good rheological properties.
- ▶ This gel is used in the skin care ani hair care .

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