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Formulation of Herbal Gel for Wound Healing from Hollarrhena Pubences, Withania Somnifera, Azadirachta Indica, Curcuma Longa

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Abstract: ***The present reaearch has been undertaken with the aim to fomulate and evaluate the herble gel containng alcoholic extract of Hollarrhena pubences(kurchi), Withania somnifera(ashwagandha), curcuma longa(turmeric)Azadiracht indica(neem). The gel formulation prepared by using various polymer bases(methyl cellulose) . The stability study have carried as per ICH guideline. The result show that the gel formulation containing kurchi, ashwagandha, turmeric, neem has better stability than other. All formulation studied on animal model(rat).The present work justifies the use oh herbal gel containing ashwagandha, turmeric, neem, kurchi for wound healing.***

Keywords: wound healing; Hollarrhena pubences, withania somnifera, curcuma longa, azadirachta indica; topicle gel.

I. INTRODUCTION

Various plant species have served as a source of medicine for a people all over the world. Herbal medicine treatment is effective and have less side effect.India has rich tradition of plant based knowledge of health care.Plants and their extracts have potential for treatment of wound healing. The aim of present study is to formulate and evaluate herble gel containing extract of hollarrhena pubences, withania somnifera, curcuma longa,azadirecta indica for wound healing.wound is term applied for the dissruption of anatomic continuity of a tissue with or without microbial infection.Most single synthetic drug formulation in the market are not reliable for their wound healing properties and sone formulation also have irritation like properties.sevral medicinal plant have been found to have wound healing properties.some plant extract have been formulated for clinicle use in wound management and have proved safe and efficacious.

The present study was undertaken to validate the effectiveness of the extract of hollarrhena pubences, withania somnifera, curcuma longa,azadirachta indica by formulating ethanolic extract in gel polymer (methyl cellulose).

A. Role of Herble Ingredients

Hollarrhena pubences is widely used in Ayurveda. It's seeds are are used as antihelmenthetic. And It's leaves has antifungal property. In Ayurveda it is used for the treatment of many diseases. It also show antimicrobial and wound healing property.



Family: Apocynacae
Chemical constituents:kurchessine, conessine, isoconessimine.

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B. Withania Somnifera

Withania somnifera is cognitive enhancement as an antioxidants, as a anti- inflammatory agent and for immune system support, it also have wound healing herb. Chemicle constituents: Alkaloids (anaferine, anahygrin), steroidal lactones(withanolides, withaferines).

C. Curcuma Longa

Curcuma longa (turmeric) which consist of dried as well as fresh rhizome of the plant traditional it has been proved that it has anti-inflammatory, antioxidant, anticancer and antiseptic and also wound healing.

Chemicls constituents: Curvimenol, curcumin nourishment to the skin, useful in detoxification, treat fungle infection, and also has wound healing property.



Chemicle constituents: axadirachtin, nimbidin, sodium nimbinate, salanin, nimbinate.

D. Azadirachta Indica

Neem leaves has lots of medicinal properties, it has antiinflatory propety, nourishment to the skin, useful in detoxification, treat fungle infection, and also has wound healing property.

Chemicle constituents: axadirachtin, nimbidin, sodium nimbinate, salanin, nimbinate.



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E. Chemical Composition Used In Gel Formulation And There Role

1) *Methyl Cellulose:* Methyl cellulose is odurless, transparent, stable, oil resistant, non toxic with good film forming property.
2) It is non ionic polymer with a linear structure and it was used as a gel formig agent in formulation.
3) *Methyl Paraben:* Methyl paraben has good antimicrobial activity hence it is use as a preservative in gel formulation to prevent the microbial contamination.
4) *Propyl Paraben:* It has anti fungal activity and also used as preservative in gel.
5) *Trietanolamine:* Triehanolamine is used in formulation to adjust the ph of gel.

II. MATERIAL METHOD

Preparation of plant extract: The aerial part of Hollarrhena pubences, Withania somnifera, azadirachta indica, collected from agriculture nurseries.turmeric rhizomes were obtain from local market. The plant specimen was air dried in shade, powdered and were subjected to cold extraction method by maceration with methanol with shaking for 70hrs.after maceration the extract was filtered. The optaine extract kept in a tight container.
Chemicals: methyl cellulose, methyl paraben,propyl paraben, carbomer.

A. Preparation of Herbal Gel

1gm of methyl cellulose was dispersed in 45 ml distiled water with continuous sturing. 4ml distilled water was taken required quantity of methyl paraben and propyl paraben were dissolve by heating on water bath cool the solution then add extract (1gm)of hollarrhena pubences, withania somnifera, curcuma longa,and azadirachta indica and mixed the formulation properly in methyl cellulose with continuous stering and then trietanolamine was aaded dropwise to the formulation for adjustment of required skin ph. The gel is ready for use.

Formulation of topicle gel containing:

Sr.No.	Exipient	Quanity
1	Plant extract	1gm
2	Methyl cellulose	1gm
3	Propyl paraben	0.2gm
4	Trietanolamine	0.2 ml

The gel was greenish in color and trancelucent in aapperancr and gave smooth feel on application which was maintain after tested stability study. Ph is also maintain through out the study the initial viscosity of developed gel were mesured by using Brookfield viscometer with spindle.



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B. Evaluation of Herbal gel Formulation

1) *Physical Evaluation:* Physical parameter such as colout adour and appearance were checked.
2) *Yield Value:* It is measure of the fourcs requre to extrude the material from deformable bottle tube . It is checked by using instrument called penetrometer.
3) *Viscosity:* Viscosity of gel was mesured by using Brookfield viscometer with spindle
4) *Mesurment of Ph:* Ph of gel was mesured by using ph meter.
5) *Spradability:* Spreadability was determine by the appratus which consist of wooden block which was provided by pully at one end. By this method spredabilitywas mesured on the basis of slip and drug characteristic of gel.
6) *Stability Study:* The stability study was performed as per ICH guidelines. The formulated gel were filtered in collpsible tubes and stored at different temperature and humidity conditions.
7) *Skin Irritation Test:* 0.5gm of the herbal belwas used as a test substance was appliied to the skin and covered with gauze patch the patch was loosely held in contact with skin by means of a semi occlusive dressing for a duration of one hour and gauze was removed. It was observed that at applied area has no sensitivity to the skin.

C. Experimental Procedure

2 Albino rat weighing 150-200 gm weight used for study. Animals were anesthetized prior to and during creation of wound.dorsal fur of the animals was shaved with razor . The wound is created by using surgical blade and scissor. After creation of wound apply herble formulated gel on first rat and other formulation to second rat. Observe the wound healing of both rat.After some day herble gel show a faster rate of wound healing as compare to other formulation.

D. Advantages of Formulated Herbal Gel

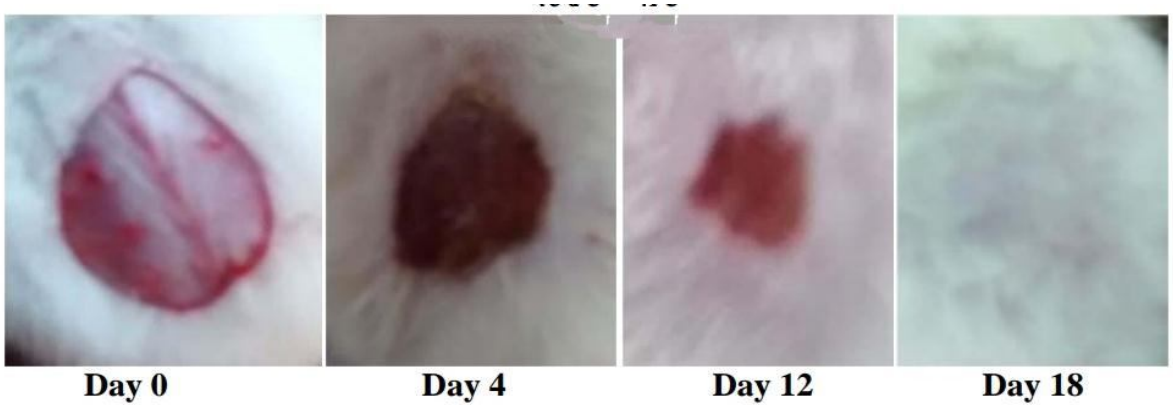
1) More affordable than convetional.
2) Side effects is not occurred by this gel.
3) The formulated gel is cost effective.
4) Irritation isis not observed with this gel.
5) The herble gel was very easy to form



III. RESULT

1) *Preliminary Phytochemicals Study:* The ethanolic extract of hollarrhena pubences, withania somnifera, curcuma longa, azadirachta indica showed the presence of phytoconstituent like alkaloids, flavonoids, phenoilcs, carbohydrates, tannines, saponine, steroids.
2) *Wound Healing Activity:* The wound healing activity of gel prepared from hollarrhena pubences, withania somnifera, curcuma longa, azadirachta indica is very well. And it has no irritation and ohter side effects.

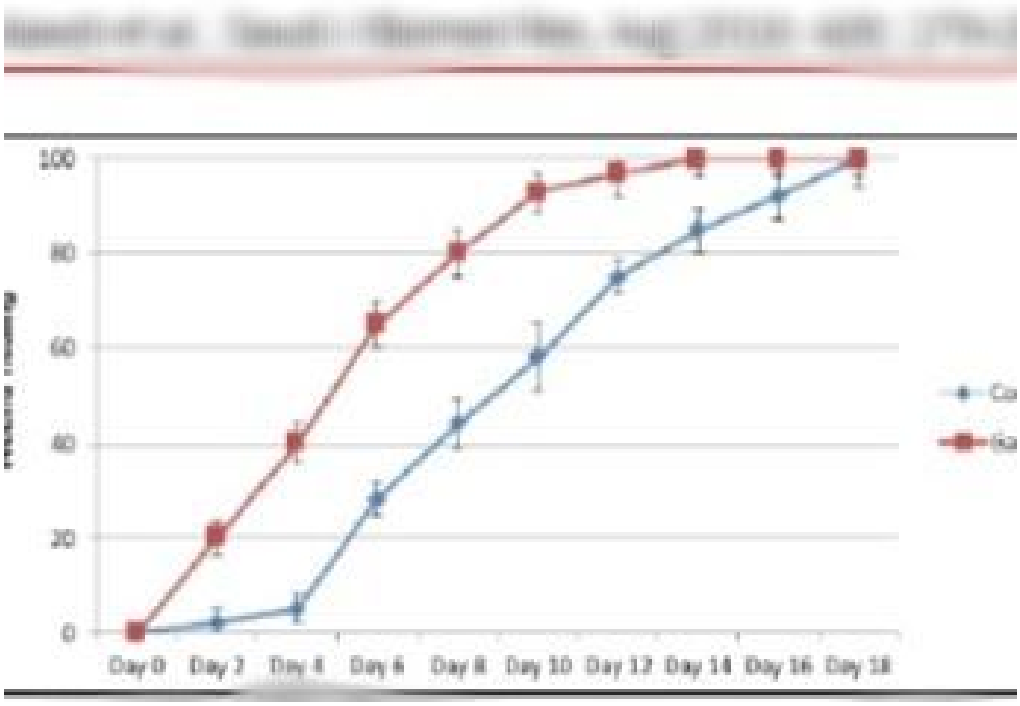
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The image show wound healing activity of herble gel prepared from hollarrhena pubences, withania somnifera, curcuma longa, azadirachta indica on animal model (albino rat) on different days.

3) *Red Line:* Show wound healing with herble gel formulation of hollarrhena pubences, withania somnifera, cucurma longa, azadirachta indica.
4) *Blue Line:* Show wound healing with other formulation.

From gragh we find out herble gel formulation show faster rate of wound healing as copare to other formulation.



IV. CONCLUSION

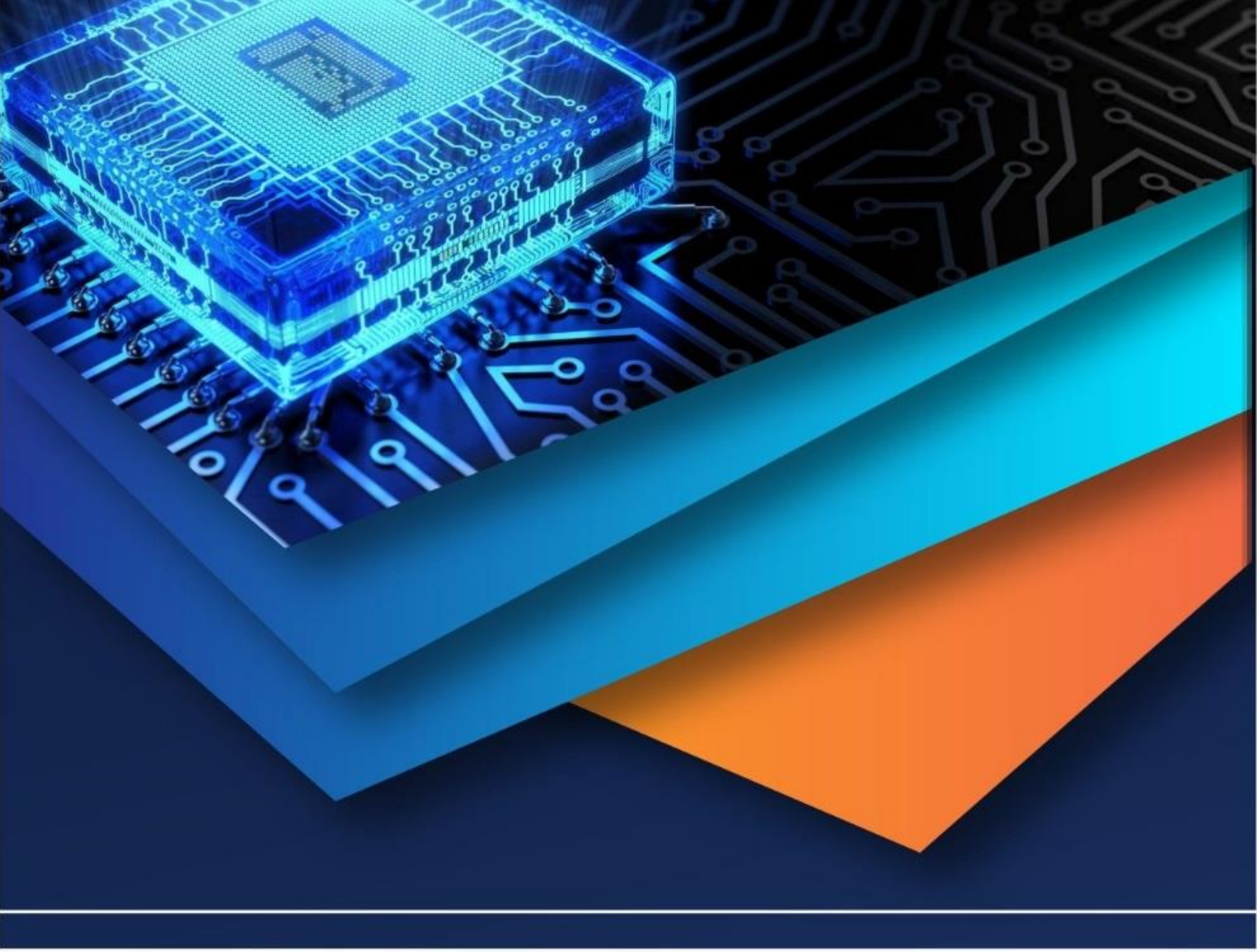
The pharmacological evaluation of the gel was made by wound model.In this study it was seen that the herble concentration of gel showed wound closure as compare to other formulation.The 5%gel show better activity which is highly comparible to standard. Thus from above study it is concluded that the hollarrhena pubences, withania somnifera, cucurma longa, azadirachta indica showed good wound healing .it has no irritation to the skin and has no other side effect.
Natural remedies areare more acceptable in the belif that they are safer as compare to synthetic one.

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