Formulation And Evaluation of Cream Containing Natural Would Healing Activity of Tridax Procabens

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Abstract: Now a day's herbal medicine has great impact on human health and diseases. Herbal medicine plays important role in overall aspects such as economical and Medicinal. Although usage of these herbal medicines is increased day by day Because of their quality, efficacy and safety. The present research study Explores new formulation containing extracts of Tridax procumbens, Ficus Religiosa, Azadirachta indica and Curcuma longa in the form of cream (O/W). The formulation were characterized by determining the pharmaceutical Characteristics such as pH, appearance, viscosity, spreadability, etc. The Phytochemical constituents such as carbohydrates, alkaloids, steroids, etc were Detected with the help of identification tests. The cream formulation were Designed by using excipients such as stearyl alcohol, beeswax, sorbitol Monooleate, methyl paraben, propyl paraben and liquid paraffin. As compared To allopathic medicines herbal medication is considered as safer. Whereas Allopathic medications are associated with some side effects. Whereas cream Formulation is much better as compared to other formulations for absorption And penetration of active moiety tropically.

Introduction:

Restorative plants are known to be a major source to remedy different issues in human Since previous time. Inour world one-fourth of populace is depend on conventional Medicines to remedy different conditions and sicknesses in human creatures. For avoidance And tocure illnesses as of late consideration is paid towards utilization of eco-friendly and Bio-friendly plant based items. Home grown cures plays an imperative Part in curing Various afflictions and this are getting Expanding persistent compliance as they are void Of Ordinary side impacts of allopathic drugs. Hence turning to secure, successful and Time tried Ayurvedic home grown definitions would be a ideal Alternative. So there is Need to examine and define Unused such a home grown drugs for superior quiet Acceptance and compliance. Indian society pharmaceutical contains numerous medicines for Therapeutic Purposes such as aggravation, wound mending, skin Contaminations, etc. Herbal medications in wound recuperating Administration includes sanitization, debridement And Giving appropriate environment for characteristic mending Prepare. Hence, the fundamental Objective of this ponder is to Define and assess polyherbal cream which can Be Used as anti-coagulant, anti-microbial, antiinflammatory, to remedy bubbles, treat irresistible Skin Maladies, anti-fungal, pain relieving and wound mending. This display ponder includes The extricate of Tridax Procumbens, Ficus religiosa, Azadirachta indica, and Curcuma Longa. Furthermore nectar and eucalyptus Oil is utilized. These plants have been utilized Separately For treating different skin issues in more seasoned times. But Presently this detailing Can be utilized as all in one cream For more successful treatment

Classification of Wounds

Wounds are classified as open wounds and closed wounds on the Underlying cause of wound Creation and as intense and persistent wounds on the premise of The physiology of wound healing.

A. Open wound:

Through the open wound, blood get away the body and dying is clearly visible.

1) Incised Wounds: It is an harm with no tissue misfortune and negligible tissue harm. It is caused by a sharp Object such as aknife. Bleeding in such cases can be lavish, so quick activity Should be taken.

2) **Laceration wound or tears Wounds**:
This is a nonsurgical damage in conjunction with a few sort of injury, coming about in Tissue damage and Harm

3) Puncture Wounds:
They are caused by a few protest puncturing the skin, such as a needle or nail. Chances of infusion inthem Are common since soil can enter into the profundity of the wound

4) Penetration Wounds:
Penetration wounds are caused by an question such as a cut entering and coming out From the skin.

B. **Closed wounds:**
In closed wounds, blood get away the circulating system but remains in the body. It Includes wound or Bruises, hematomas or blood tumors, smash harm etc .

1)**Contusions or bruises:**
Bruises are caused by limit constrain injury

2)**Hematomas or blood tumors:**
They are caused by harm to a blood vessel that subsequently causes blood to Collect beneath the skin.

3) **Crush injury:** Crush injury is caused when a awesome or extraordinary sum of drive is connected to the skin over a long periodof Time

4) **Intense Wounds:**
An intense wound is a tissue damage that ordinarily continues through an efficient and Timely reparative prepare That comes about in maintained rebuilding of Functional astuteness. It is as a rule caused by cuts or Surgical cuts and total the Wound recuperating handle inside the anticipated time frame

5) **Persistent wounds:**
Chronic wounds are wounds that have fizzled to advance Healing and subsequently Enter a state of pathologic aggravation. Nearby disease,Hypoxia, injury, remote bodies, and systemic Disarranges such as diabetes mellitus, Medications are the most visit causes of inveterate wounds. Chronic Wounds may Result from different causes, counting naturopathic, weight, blood vessel andvenous Insufficiency, Burns, and vasculitis.

Plant Selected For The Present Study

1. Tridax Procumbens:

- **Scientific Classification:**
  - **Family-** Asteraceae
  - **Kingdom-**Plantae
  - **Subkingdom-**Tracheobionta
  - **Division-**Spermatophyta
  - **Subdivision-**Magnoliophyta
  - **Class**- Magnoliopsida
  - **Subclass-** Aseridae
  - **Order-** Asterales
  - **Genus-** Tridax
  - **Species-** Prochumbens.
  - **Chemical constituent:** acids,phytosterol, tannin,and Minerals.
  - **Medicinal Uses**:- anticoagulant, and antifungal

Fig 1: Tridax Procumbens

2. Ficus Religiosa :

- **Synonyms**: Azadirachta indica, margosa ,roseship, melia azadirachta
- **Family**- Moracea
- **Kingdom**- .Plantae
- **Subkingdom**- Viridaeplantae
- **Phylum**- Tracheophyta
- **Subphylum**- Euphyllopsida
- **Class**- Magnoliopsida
- **Subclass**- Dilleniidae
- **Order**- Urticales,
- **Genus**-Ficus
- **Species**- religiosa.
- **Chemical constituent-**:Azadirachitin ,quercetin, glyceride, oleic
- **Medicinal Uses** : Wound healing, treat acne , treat fungal infectio

Fig2 : Ficus Religiosa

3. Azadirachta Indica:

➢ **Scientific Classification**:

- **Family** : Meliaceae
- **Kingdom** : Plantae
- **Subkingdom:** Tracheobionta
- **Division** : Magnoliophyta
- **Class** : Magnoliopsida
- **Subclass** : Rosidae
- **Order** : Sapindales

- **Genus** : Azadirachta
- **Species** : Indic

Fig3: Azadirachta Indica

4. Curcuma Longa:
- **Kingdom**- Plantae
- **Subkingdom**- Tracheobionts
- **Super Division**- Spermatophyta
- **Division-** Mangoliophyta
- **Order-** Zingiberales
- **Family-** Zingiberaceae
- **Genus**- Curcuma
- **Species**- Longa

Fig4: Curcuma Longa

Material And Method:-

- **Selection of Drug**:- The selection of a drug for wound healing activity depends on various factors, including the type and severity of the wound, the underlying cause, and the desired outcome. Some commonly used drugs for wound healing include:

1. Antimicrobial agents: These drugs help prevent or treat infections in wounds, reducing the risk of complications. Examples include antibiotics and antiseptics.

2. Growth factors: Certain growth factors promote cell proliferation and tissue regeneration, accelerating the healing process. These may be administered topically or via other delivery methods.

3. Anti-inflammatory drugs: Inflammation can delay wound healing, so drugs that reduce inflammation can help promote healing. Nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly used for this purpose.

4. Analgesics: Pain management is important for patient comfort during wound healing. Analgesic drugs can help alleviate pain associated with the wound. The selection of the most appropriate drug or combination of

drugs depends on the specific characteristics of the wound and the individual patient's needs. and presence of infection when determining the most suitable treatment approach.

- **Collection of Plant**: The entire plant of Tridax prochumbens, leaves of Ficus religiosa, leaves of Azadirachta indica and rhizomes of Curcuma longa were collected from the botanical garden of Shraddha Institute of Pharmacy, Washim. Soon after the collection, parts of these plants are cleaned, dried in shade and crushed to a coarse powder, and stored in an air tight plastic container, until further use.

Fig No 5 . Collection Of Herbal Plant

- **Maceration process**; The maceration technique was used to prepare the extraction. As part of the maceration extraction process, finely powdered drug material, such as leaves, stem bark, or root bark, is placed within a container. Menstrual fluid is then poured on top of the drug material until it is completely covered. After that, the container is shut and maintained for at least seven days. To achieve thorough extraction, the substance is periodically mixed and, if placed inside a bottle, shaken. Filtration the micelle from the mark following extraction.

FIG6 : Maceration process

- **Preparation of Plant Extract;** Powdered parts of plants like Tridax prochumbens, Ficus religiosa, Azadirachta indica and Curcuma Longa were extracted by

1)**Tridax procumbens**- 50 gm of dried portion Was poured in 250 ml of methanol. Later it Was suspended for 7 days by stirring it from Time to time. On 8 sorted out by Using Whatman no.1 filter paper and filtrate Was c evaporated to obtain semi Solid extract.

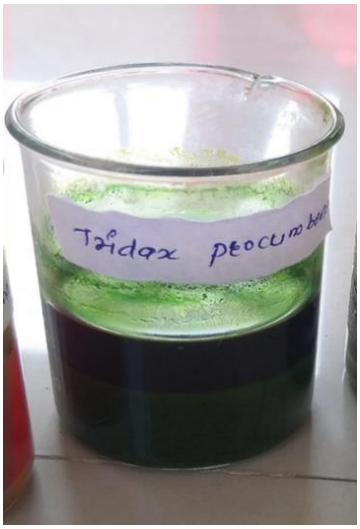

Fig. 7 : Extract Of Tridax Procumbens

1) **Ficus religiosa**- 20 gm of dried portion was Poured in 200 ml of methanol. Later it was Suspended for 48 hours by stirring it from Time to time. After that it out by Using Whatman no.1 filter paper and filtrate Was collected and evaporated to obtain semi Solid extract.

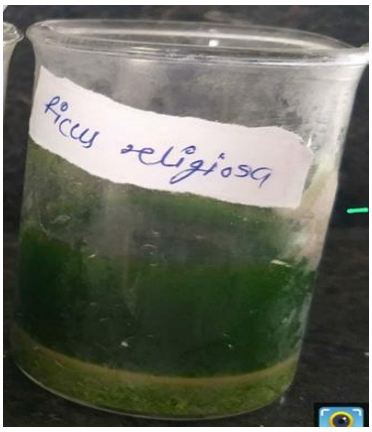

Fig. 8 : Extract Of Ficus Riligiosa

2) **Azadirachta Indica**- 15 gm of dried portion Was poured in 150 ml of methanol. Later it Was suspended for 72 hours by stirring it From time to time. After that it was sorted Out by using Whatman no.1 filter paper and Filtrate was collected and evaporated to Obtain semi solid extract.

Fig. 9 : Extract Of Azadiracta Indica

3) **Curcuma longa**- 20 gm of dried portion was Poured in 200 ml of methanol. Later it was Suspended for 48 hours by stirring it from Time to time. After that it was sorted out by Using Whatman no.1 filter paper and filtrate Was collected and evaporated to obtain semi solid extract.

Fig 10 : Extract Of Curcuma Longa

- **Development of herbal cream formulation**: O/W cream- The oil soluble components like stearyl Alchohol, beeswax, sorbitol monooleate liquid Paraffin were taken in a china dish and kept on Water bath at 75o C. In other beaker water, extracts Of Tridax prochumbens, Ficus religiosa, Azadirachta Indica and Curcuma longa were melted at 75o C. After heating, oil phase was taken in morter and Pastle and slowly the water phase was added and Triturated them till clicking sound was heard. At Last, when temperature gets cooled down honey, Eucalyptus oil were added with addition of Preservatives.

Fig 11: Wound Healing Cream

Table 01:- Cream base formula for 30gm

Sr.No	Ingredient	F2
1	Bees wax	7.0g
2	Stearyl alcohol	10g
3	Sorbitol monooleate	4.0g
4	Methyl paraben	0.025g
5	Propyl paraben	0.015g
6	Liquid paraffin	1ml

Table 02 – Formula For Development Of Cream

Sr. No.	Extract	Batchs (In Gm)		
		F1	F2	F3
1	Tridax Prochubens	**1.5**	**2**	**2**
2	Curcuma longa	**0.5**	**0.5**	**1**
3	Ficus Riligiosa	**1**	**2**	**1.5**
4	Azadiracta Indica	**1**	**1**	**0.5**
5	Honey	**1**	**1**	**0.5**
6	Eucalyptus oil	**1**	**1**	**0.5**

- **Evaluation Of Cream** ; Evaluation of a cream formulation involves assessing its physical and chemical properties. This includes evaluating aspects like viscosity, pH, particle size distribution, stability,

rheology, and compatibility of ingredients. Techniques such as microscopy, spectroscopy, chromatography, and various physical tests are commonly used for this purpose.

- **Colour and apperance**: Colour and apperance Was examined by visual examination.
- **pH:** The pH meter was calibrated using Standard buffer solution. About 1 g of cream Was weighed and dissolved in 100 ml of Distilled water and set aside for 2hrs and then pH was measured.
- **Spreadability:** The spreadability was Determined by placing excess sample (1g) in Between two slides which was compressed toUniform thickness by placing a definite Weight (50g) for definite time (5 min). The Time required to separate the two slides was Measured as spreadability.

• Spreadability was calculated by following formula,

▪ **S = M × L/T**

Where, S= Spreadability

M= Weight tide to the upper slide

L= Length of glass slide

T= Time taken to separate the slide

- . • **Viscosity:** Viscosity of the formulation was Determined by Brookfield Viscometer at 50 Rpm, using spindle no. 64.
- **Washability:** The washability of the cream Was determined by applying the cream over The skin and the extend of easy washing with Distilled water was manually observed.
- **Stability studies:** The stability studies were Carried out for the prepared herbal Formulation at different temperature Conditions (4o C, 27 o C and 37 o C).
- **Phase separation**: Formulation were Formulated as O/W cream, so as per days Passed we observed if any phase separation Was occurred or not.
- **Greasiness**: When cream were applied, it is Checked weather if the smear was oily or Greasy like nature

Result And Discussion:

1) **Characteristics of extract:** The physical state, colour, odore, Test Of the ethonolic extract of herbal plant were mentioned in below table

Table no 03: Characteristics of the extract

Characteristics	Observation
Physical state	Semisolid
Colour	Yellowish
Odor	Characteristics
Test	Characteristics

2) Colour and appearance;

Table 04- Colour And Appearance

Test	Appearance
Colour	Yellowish
Appearance	Oily creamy

3) pH

Table 05- pH

Sr.no	Batch	pH
1	F1	6.45
2	F2	6.49
3	F3	6.42

4) Spreadability

Table 06- Spreadability

Sr No. 1	Batch	Spreadability
1	F1	7.4gcm/cm 2
2	F2	7.3gcm/cm 3
3	F3	7.3gcm/cm

5) Viscosity

Table 07- Viscosity

Sr no.	Batch	Viscosity
1	F1	24019
2	F2	21849
3	F3	21852

6) Washability

Table 11- Washability

Sr.no	Batch	Washability
1	F1	Easily Washable
2	F2	Easily Washable
3	F3	Easily Washable

7) Anti- Microbial Activist:

Table 12: Anti- Microbial Activist

Sr. No	Batch	Microbial
1	F1	Not found
2	F2	Not found
3	F3	Not found

Conclusion: From our ancient period, herbal plant parts and crude drugs were directly used as a medicine. But in this research paper it is formulated with new cream. The plant and their parts such as Tridax procumbens(entire plant), Ficus religiosa (leaves), Azadirachta indica (leaves), and Curcuma longa (rhizomes) was taken for this present study and formulated for creamand their properties. As this cream (O/W) formulation Was found to be good with characteristics w.r.t such As pH, viscosity, spreadability, etc. Additionally honey And eucalyptus oil in the formulation were added. As This formulation was successfully prepared with help Of cream base which contains stearyl alcohol, bees Wax, sorbitol monooleate, etc. As a preservative Methyl paraben and propyl paraben were used. Sample of this formulation shows anti-microbial Activity against staphylococcus aureus. As this Individual extracts have different properties such as Anti-coagulant, wound healing, etc which is already Proved in other papers. As mixture of this extracts, Develop in new cream formulation in this present Which will show this entire properties and can be Effective and safe. Thus it is concluded that growing Demand for herbal formulation in the market is Increasing day by day due to it is safe and effective.And one of the reason behind this formulation is itsBetter absorption and penetration of the active moiety Into the systemic circulation for early and better Effect. Further more, different agents can be used in the Formulation. And long term studies and clinical trials Can also possible if this work yields

encouraging Results. This formulation can also be incorporated in Different suitable dosage forms such as ointments, gels,Etc.

References:

1. Chandra Pratap singh, Pawan Kumar Mishra and Surya Prakash Gupta., Design andformulation of Tridax Prochumbens based polyherbal cream for Wound healing potential. Der Pharmacia Lettre,2016, 8 (12):15-21.
2. Pratikcha Rai, Adarsh Pratik Poudyl, Sujit Das, Pharmaceutical Creams and Their use in wound Healing: A Review. Journal of Drug Delivery & Therapeutics. 2019; 9(3-s):907-912.
3. Nidhi Chowdhary , Mohanjit Kaur , Amarjeet Singh , Bimlesh Kumar , Wound Healing Activity of Aqueous Extracts of Ficus Religiosa And Ficus Benghalensis Leaves In Rats, Indian
4. Journal of Research in Pharmacy and Biotechnology. Maver T, Maver U, Stana Kleinschek K et al., A Review of herbal medicines in wound healing. International Journal of Dermatology. 2015; 54(7): 740-751.
5. Dewashish Kaushik, Alokit Tanwar and Dr. Joseph Davis, Ethanopharmacological and Phytochemical Studies of Tridax Procumbens Linn: A Popular Herb in Ayurveda Medicine.
6. Rahul Kumar verma, Medicinal properties of Turmeric (Curcuma longa L.): A Review, January 2018.
7. Sanskriti Gautam, Sameer S Bhagyawant, Ficus Religiosa-Potential Role in Pharmaceuticals, International Journal of Pharmaceutical Sciences and Research- May 2014.
8. Santosh Kumar Srivastava, Babita Agarwal, Akhilesh Kumar and archana Pandey, Phytochemicals of Azadirachta indica Source of Active Medicinal Constituents Used for Cure of Various Diseases- A Review. Journal of Scientific Research, Volume 64, issue 1, 2020.
9. Rajendra Gyawali, Rupesh kumar Gupta, Sahana Shrestha, Rajendra Joshi and Prem Narayan Paudel, Formulation and Evaluation of Polyherbal Cream Containing Cinnamomum Zeylanicum blume, Glycyrrhiza glabra l and Azadirachta indica A. Juss extracts to topical Use. Journal of Institute of Science and Technology,25 (2), 61-71(2020).
10. Ashwani Kumar, Vidisha Tomer, Ficus Religiosa: A wholesome medicinal Tree, July 2018
11. Kavitha AN, Deepthi V and Naira Nayeem, Design, Formulation and Evaluation of a Polyherbal Ointment for its Wound Healing Activity, Pharmacophore 2013, Vol. 4 (5), 175-180.
12. Kenneth Chinedu Ugoeze, Majiroghene Uyoyoumaero Okpa, Evaluation of Aqueous Creams Containing Ethanolic Extract Curcuma Longa (Turmeric) as Bioactive Ingredient for the Management of Wounds. Int J Appl Biol Pharm 2021;12(1):322-337.
13. Rita M. Charde, Hemant J. Dhongade, Manoj S. Charde and A.V .Kasture, Evaluation of Antioxidant, Wound Healing and Anti-Inflmmatory Activity of Ethanolic Extract of Leaves of Ficus Religiosa, Ijpsr (2010), Vol. 1, Issue 5
14. Nidhi Chowdhary , Mohanjit Kaur , Amarjeet Singh , Bimlesh Kumar , Wound Healing Activity of Aqueous Extracts of Ficus Religiosa And Ficus Benghalensis Leaves In Rats, Indian Journal of Research in Pharmacy and Biotechnology.
15. Nimbekar T.P., Meshram A. S. Farooqui M. S., Formulation And Evaluation of Ointment Containing Natural Wound Healing Activity of Tridax Procumbens, 2019 JETIR May 2019, Volume 6, Issue 5.
16. Reza Yaghoobi, Afshin Kazerouni , Ory Kazerouni, Evidence for Clinical Use Of Honey In Wound Healing as an Anti-bacterial, Antiinflammatory Antioxidant and Anti-viral Agent: A Review, Jundishapur Journal of Natural Pharmaceutical Products. 2013 August; 8(3):100-4.
17. Meria MD, Pinky Sarmah, Dhilleswara Rao V et Al., Wound Healing: Concepts and Updates in Herbal Medicine. International Journal of Medical Research & Health Sciences. 2018; 7(1): 170-181.
18. Maver T, Maver U, Stana Kleinschek K et al., A Review of herbal medicines In wound healing. International Journal of Dermatology. 2015; 54(7): 740-751.
19. Kim KJ, Yu HH, Cha JD et al. Antibacterial Activity of Curcuma longa L. Against Methicillin-resistant Staphylococcus aureus. Phytotherapy Research. 2005; 19(7): 599- 604
20. Suresh Kumar D, Choudhury PK, Rajnish Srivastava et al. Antimicrobial, Antiinflammatory and wound healing activity of poly herbal formulation. Biomedicine & Pharmacotherapy. 2019; 111: 555–567

21. Santosh Kumar Maurya and Dinesh Kumar Verma, Phytochemical and Pharmacological review of Tridax Procumbens L.World Journal of Pharmaceutical Research, 2021,10,22777105
22. Sneha Mundada, Ruchi Shivhare, Pharmacology of Tridax procumbens a Weed: Review. Internation journal of pharmaTech Research, 2010,2(2),1391-1394
23. Mundada S, Shivhare R (2010) Pharmacology of Tridax Procumbens a weed. Int J Pharm Tech Res 2(2): 1391-1394
24. Dr. S.G.Pawar, A.M.Patil, a Review and Preliminary Phytochemical Screening Of Tridax Procumbens Linn As Important Medicinal Plant, IJSR,6, 205-206.