

DEVELOPMENT OF AN INNOVATIVE HERBAL WOUND HEALING DRESSING FOR VETERINARY APPLICATIONS*¹Maitreyi Bhushan Joshi and ²Dr. Kalyani Joshi (Taksale)¹Pharm D (Scholar), Institution: Abhinav Education Society's College of Pharmacy, Narhe, Pune- 411041.²Consultant at Sukhayu Ayurved Speciality Clinic, Ravet, Pune.

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ABSTRACT

The study presents the development of herbal wound healing dressing formulation comprising paste of combination of powders of turmeric, neem leaves and arjun bark, with liquid paraffin serving as the vehicle. Each of these herbal ingredients are renowned for strong therapeutic qualities, like antibacterial, anti-inflammatory, and wound-healing actions. The study evaluates effectiveness of this herbal dressing in promoting wound healing in animals. The findings indicate that the herbal dressing considerably accelerates the healing process of wounds, reduces the infection risk, and minimizes adverse reactions compared to conventional dressings, suggesting a natural and effective alternative for veterinary wound care. This research explores the preparation, application, and effectiveness of this herbal dressing, providing a natural and effective solution for wound care in animals.

KEYWORDS: Herbal dressing, wound healing, veterinary medicine, natural therapy.**INTRODUCTION**

Wound healing is a critical aspect of veterinary medicine, essential for the recovery and well-being of animals. Traditional wound care often relies on synthetic products, which can sometimes cause adverse reactions or be less effective in promoting natural healing processes. The application of herbal therapies has gained popularity in recent years, which offer a natural and often safer and cost effective alternative to conventional treatments.

Since ancient times, people from many cultures have utilized herbal medicine for its therapeutic benefits. In traditional medicine, ingredients like turmeric, neem leaves, and arjun bark are widely known for their ability to reduce inflammation, fight infection, and promote wound healing. Turmeric, for instance, contains curcumin, which has potent anti-inflammatory and antiseptic effects. Neem leaves are renowned for their antibacterial and antifungal properties, while Arjun Bark are used for their healing and anti-inflammatory benefits.

The present study aims to develop a herbal wound healing dressing specifically for veterinary use. By combining the powders of turmeric, neem leaves, and arjun bark with liquid paraffin as a vehicle, we seek to create a formulation that not only promotes faster wound healing but also minimizes the risk of infection and adverse reactions. This research explores the preparation, application, and effectiveness of this herbal dressing,

providing a natural and effective solution for wound care in animals.

MATERIALS AND METHODS**Ingredients**

- Turmeric (*Curcuma longa*) Powder: Organic turmeric powder available in the market.
- Neem (*Azadirachta indica*) Leaves Powder: Freshly picked leaves were cleaned and allowed to dry in the sun for two weeks. A fine powder was obtained by crushing the dried leaves into a powder and then sieving them.
- Arjun Bark (*Terminalia arjuna*) Powder: Organic arjun bark powder available in the market.
- Liquid Paraffin: Used as a vehicle to form a consistent paste.

Preparation of the Dressing

1. Mixing the Powders: Combine the turmeric powder, neem leaves powder and arjun bark powder in a clean, dry container to produce a homogeneous mixture.
2. Adding Liquid Paraffin: Gradually add the liquid paraffin to the mixed powders while stirring continuously to form a smooth paste.
3. Spreading on Fabric: Evenly spread the paste on the surface of a leno weave fabric (gauze fabric).
4. Wrapping: Wrap the prepared dressing in butter paper for storage and ease of application.

Application Method

1. Preparation of the Wound: Clean the wound area with sterile saline solution to remove any debris or contaminants.
2. Application of the Dressing: Apply a thin layer of the herbal paste directly onto the wound using a sterile spatula or gloved hand.



Table no. 1: Physical Examination of wound healing dressing.

Colour	Yellowish brown
Odour	Turmeric like, pleasant
Ph	5.4

Test on Animal

A pilot study was carried out on one cat under supervision of registered veterinarian.

- Subject: One cat with a dermal wound.
- Procedure: The dressing was applied to the wound after thorough disinfection and was wrapped with a normal (surgical) gauze piece. The dressing was changed every alternate day until the wound was completely healed.
- Permission: Every procedure was done with the consent of the animal owner.
- Observation: The wound healed rapidly, taking approximately 2-3 days for complete healing.

RESULTS

The herbal wound healing dressing was tested on one cat with a dermal wound. The dressing was applied to the wound after thorough disinfection and was wrapped with a normal (surgical) gauze piece. The dressing was changed every alternate day until the wound was completely healed. The following observations were made:

1. Healing Time: The wound showed significant improvement within the first 24 hours of application. Complete healing was observed within 2-3 days.
2. Infection Rate: No signs of infection were observed during the treatment period.
3. Adverse Reactions: The cat did not exhibit any negative responses or side effects.



3. Covering the Wound: Cover the treated wound with a sterile gauze pad and secure it with a bandage.
4. Frequency of Application: Change the dressing and reapply the herbal paste every 24 hours or as needed, depending on the wound's condition.
5. Duration of Treatment: Continue the treatment until the wound is completely healed, monitoring for any signs of infection or adverse reactions.

DISCUSSION

The study's findings demonstrate the great efficacy of the herbal wound healing dressing in promoting rapid wound healing in animals. The combination of turmeric, neem leaves and arjun bark, each known for their medicinal properties, contributed to the overall effectiveness of the dressing.

- Turmeric: Turmeric's antibacterial and anti-inflammatory qualities assisted in lowering inflammation and warding off infection.
- Neem Leaves: The antibacterial and antifungal qualities of neem leaves further protected the wound from infections.
- Arjun Bark: The anti-inflammatory and wound-healing properties of arjun bark complemented the other ingredients, enhancing the overall efficacy of the dressing.

The use of liquid paraffin as a vehicle ensured that the herbal powders were evenly distributed and could be easily applied to the wound. The leno weave fabric (gauze fabric) provided a suitable medium for the paste, allowing it to stay in place and protect the wound.

The rapid healing observed in the cat suggests that this herbal dressing could be a valuable alternative to conventional synthetic dressings in veterinary medicine. The absence of adverse reactions and infections further supports its safety and effectiveness. It is safe even if ingested by the animal.

To confirm these results and fully investigate the potential of this herbal dressing in veterinary care, more research with a bigger sample size and a variety of wound types is recommended.

SUMMARY

This research highlights the benefits of utilizing natural ingredients in wound care, offering a safer and potentially more effective solution for treating animal wounds. To confirm these results and investigate the full potential of this herbal dressing in veterinary medicine,

larger sample sizes and a wider range of wound types are advised for future research. The successful application of this dressing on a cat with a dermal wound, resulting in complete healing within 2-3 days, underscores the efficacy of the herbal formulation. The absence of infections and adverse reactions further supports its safety and suitability for veterinary use.

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