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WOUND HEALING, MAGGOTICIDAL AND ANTIFUNGAL EFFECTS OF *CHROMOLAENA ODORATA IN DOMESTIC ANIMALS*

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ABSTRACT

Chromolaena odorata, commonly known as Siam weed, is widely utilized in ethnoveterinary medicine for treating wounds and skin infections. This case study evaluates the wound healing, maggoticidal, and antifungal activities of freshly prepared *C. odorata* leaf paste in animals including cattle, goats, pigs, and dogs. Topical application resulted in substantial wound contraction, maggot clearance, and resolution of dermatophytosis over seven days. These findings support its use as an accessible and cost-effective agent in field of veterinary medicine.

Keywords: *Chromolaena odorata*, wound healing, maggoticidal, antifungal, ethnoveterinary medicine

INTRODUCTION

Medicinal plants play a significant role in primary healthcare systems, particularly in rural and resource-limited settings. Among these, *Chromolaena odorata* (L.) R.M. King & H. Rob., a member of the family Asteraceae, has gained importance due to its traditional therapeutic applications. It is native to North and Central America and widely distributed in tropical Asia and Africa, where it is used for treating wounds, burns, and skin infections (Ngono *et al.*, 2006; Mahmood *et al.*, 2005).

Various studies have revealed that *C. odorata* contains bioactive compounds with antimicrobial, anti-inflammatory, antioxidant, and hemostatic properties (Bhargava *et al.*, 2013; Hanh *et al.*, 2011). Its aqueous and ethanolic extracts have demonstrated efficacy against both Gram-positive and Gram-negative bacteria as well as fungal pathogens (Naidoo *et al.*, 2011; Akomas and Ijioma, 2014).

The present work aims to explore the practical utility of fresh *C. odorata* leaf paste in the topical treatment of wounds,

maggot-infested lesions, and superficial fungal infections in field veterinary cases.

MATERIALS AND METHODS

Plant Material Collection and Preparation: Fresh leaves of *C. odorata* (Fig.1.) were collected from Kunnamkulam, Thrissur district, Kerala. The leaves were washed thoroughly, air-dried in shade for one hour, and then crushed into a fine paste using a mechanical grinder.

Selection of Animals: Cases presented at the Veterinary Polyclinic and Pig Breeding Unit, Kunnamkulam, involving wounds, maggot infestations, and dermatological conditions were included. A total of 11 animals (bovines, caprines, porcines, and canines) were selected based on clinical assessment.

Treatment Protocol:

1. **Wound Healing Activity:** Lacerated and ulcerative wounds were cleaned using lukewarm water and sterile cotton before application of *C. odorata* paste. The paste was applied twice daily for seven days. Healing was assessed on days 3, 5, and 7.

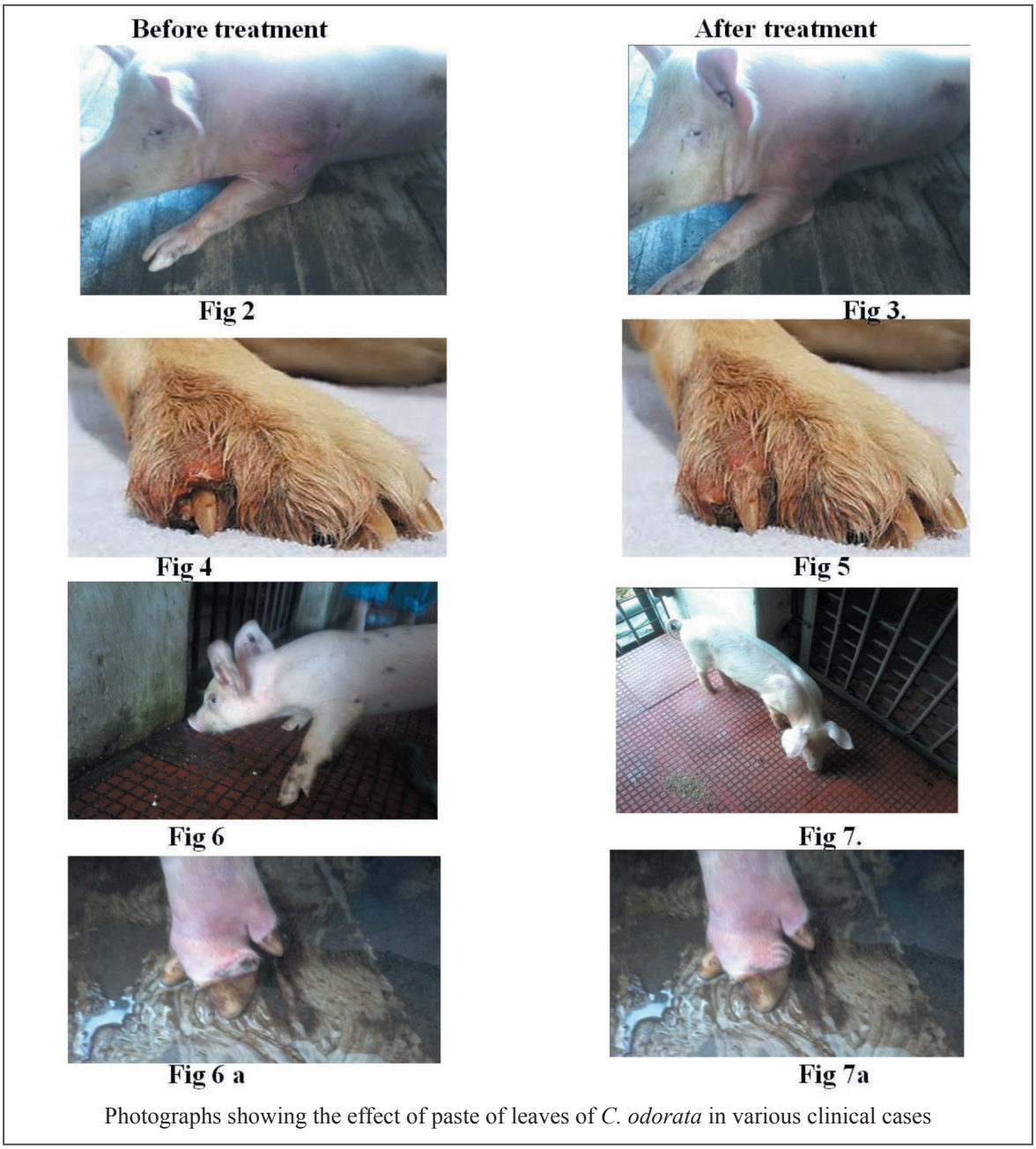
2. **Maggoticidal Activity:** In maggot-infested wounds (n=3), paste application followed the same protocol. The presence of live maggots and healing status were evaluated on days 3, 5, and 7.

3. **Antifungal Activity:** In five animals diagnosed with fungal dermatitis (confirmed by examination of skin scrapings with freshly prepared potassium hydroxide solution (KOH), the paste was applied twice daily. Skin scrapings were examined microscopically on days 3, 5, and 7 to monitor fungal load reduction.

Table 1: Reduction of fungal spores in affected animals following topical treatment

Day	Case1	Case2	Case3
Day 1	++++	++++	+++
Day 3	+++	++	+++
Day 5	++	+	+
Day 7	+	-ve	+

Fig 1. Leaves of *Chromolaena odorata*



Photographs showing the effect of paste of leaves of *C. odorata* in various clinical cases

RESULTS AND DISCUSSION

Wound Healing: Treated wounds showed progressive reduction in size, discharge, and inflammation. By day 7, complete re-epithelialization and wound closure were observed in all animals (Fig.2. and Fig.3). These findings are consistent with earlier reports demonstrating wound healing activity *via* enhanced granulation, epithelialization, and reduced bleeding/ clotting time (Mahmood *et al.*, 2005; Akomas and Ijioma, 2014).

Maggoticidal Effect: Maggots were eliminated by day 3, and secondary infection was avoided due to the antimicrobial nature (Naidoo *et al*., 2011) of the extract (Fig 4. and Fig.5.). The larvae-desiccating and salivary enzyme inhibitory effects may also contribute to this outcome (Sukhthankar *et al.*, 2014).

Antifungal Activity: As summarized in table 1, skin scrapings revealed marked reduction in fungal spores. One case was KOH-negative by day 7, while others showed significantly decreased fungal load, aligning with findings from Ngono *et al.* (2006) and Naidoo *et al.* (2011). The results are displayed in Fig 6,6a and Fig.7., 7a.

C. odorata has been widely documented for its antimicrobial spectrum against organisms like *Bacillus subtilis*, *S. aureus*, *Candida albicans*, and *Trichophyton* spp. (Naidoo *et al.*, 2011; Odutayo *et al*., 2017). Its polyphenolic constituents and fatty acids may explain the anti-inflammatory and antifungal outcomes observed (Hanh *et al.*, 2011).

The ease of preparation and topical application of fresh paste provides a farmer-friendly, sustainable intervention, particularly relevant in rural veterinary care.

SUMMARY

The present field study substantiates the wound healing, maggoticidal, and antifungal properties of *C. odorata* paste when topically applied to domestic animals. It offers a promising, low-cost ethnomedicinal solution for managing external wounds and skin infections. Its integration into ethnoveterinary practice could significantly reduce reliance on antibiotics and improve animal welfare.

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