

## **Ethno-veterinary approach for lumpy skin disease management - an update**

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### **Abstract**

*In the Indian economy, livestock plays a key role. Approximately 20.5 million people rely on livestock. One of the most critical constraints in such a condition is the spread of emerging diseases, which causes reduced milk production, meat production, draft capacity, dung, and hides. Lumpy skin disease (LSD) is an economically significant emerging viral disease of cattle and buffaloes. LSD is associated with the Lumpy skin disease virus (LSDV), a member of the genus Capripoxvirus of the Poxviridae. The LSDV has traditionally been limited to the African continent, but recently it had spread to different parts of the globe. Hence, the significance of this paper is to review available ethno-veterinary practices for LSD control on e-resources.*

**Keywords:** Lumpy skin disease, Livestock, Ethno-veterinary practices, Disease management

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### **I. Introduction**

As per the Basic animal husbandry statics report - 2019, the total livestock population is 532.5 million in India<sup>1</sup>. In the Indian economy, livestock plays a key role. Approximately 20.5 million people rely on livestock<sup>1</sup>. The livestock sector accounts for 4.11% of GDP and 25.6% of GDP for agriculture<sup>1</sup>. One of the most critical constraints in such a condition is the spread of emerging diseases, which causes reduced milk production, meat production, draft capacity, dung, and hides. Lumpy skin disease (LSD) is an economically significant emerging viral disease of cattle and buffaloes. LSD, due to lower milk production, beef loss, and draught power loss, abortion, infertility, losses of the condition, and hide damage, causes significant financial losses<sup>2</sup>. LSD is associated with the Lumpy skin disease virus (LSDV), a member of the genus *Capripoxvirus* of the *Poxviridae*<sup>3</sup>. The LSDV has traditionally been limited to the African continent, but recently it had spread to different parts of the globe<sup>4</sup>. During this manuscript's design, LSD in India has spread to Kerala, Tamil Nadu, Andhra Pradesh, Telangana, Odisha, Jharkhand, West Bengal, Assam, Tripura, Chhattisgarh, Maharashtra, and Madhya Pradesh. No specific treatment for LSD could be available; only symptomatic treatment with allopathic antibiotics has been suggested<sup>3,5,6</sup>. Drug resistance, high monetary involvement and other side effects of allopathic antibiotics cannot be ignored. Again, several successful attempts have been recorded to reduce the symptom through ethno-veterinary practice, reducing livestock rearers' economic loss. Ethno-veterinary medication, the scientific concept for traditional animal diseases treatment, offers low-cost approaches to allopathic Medicines<sup>7</sup>. Hence, the essence of this paper is to review available ethno-veterinary practices for LSD control on e-resources. The names of the plant have been provided as suggested by the respective authors.

### **II. Different Ethno-Medicine Protocol**

I. A combination of oral and topical application for LSD management<sup>8</sup>. For the first three days of infection - Paste of ten betel leaves, ten black pepper, 10 grams of crystal salts and ad. lib. jaggery to be administered orally every 3 hours. For three days to fourteen days of infection - Paste of 2 number of garlic, coriander leaves 15 grams, cumin leaves - 15 grams, holy basil (thulsi) - one hand full, clove leaves - 15 grams, black pepper-15 grams, betel leaves - 5 number, shallots (small onion) - 2 number., turmeric powder - 10 grams, neem leaves - one hand full and ad.lib. jaggery to be administered three times a day. For open wound - Boil [AcalyphaIndica leaves (Kuppi, Kuppaimeni) - one hand full, garlic tooth - 10 number, neem leaves - one hand full, holy basil (thulsi) - one hand full, turmeric powder - 10 grams, henna leaves - one hand leaves] in coconut oil. Cool the content and apply on wound after cleaning the wound.

II. LSD sore can be treated by external application of chopped leaves of *Croton megalobotrys* Müll. Arg<sup>9</sup>.

III. Different plant used for lumpy skin disease treatment<sup>10</sup> is mentioned in Table no 1

**Table no 1:** Different etho-veterinary preparation for LSD management as suggested<sup>10</sup>

Species , Family	Parts used	Preparation	Administration
<i>Acacia abyssinica</i> Hochst. ex Benth., Fabaceae	Bark	Soaked in water	Orally
<i>Acacia macrothyrsa</i> Harms, Fabaceae,	Bark, Leaves	Soaked in water	Orally
<i>Acacia spirocarpa</i> Hochst. Ex A. Rich., Fabaceae	Bark, leaves	Soaked in water	Orally
<i>Carissa spinarum</i> L., Apocynaceae,	Bark	Soaked in water or water extract with <i>Zanthoxylum chalybeum</i> roots	Orally
<i>Rhus vulgaris</i> Meikle, Anacardiaceae,	Flower and leaves	Soaked in water	Orally
<i>Steganotaenia araliacea</i> Hochst. Apiaceae,	Bark, root or tuber	Soaked in water	Orally
<i>Tagetes minuta</i> L., Asteraceae	Whole Plant	Soaked in water	Orally
<i>Zanthoxylum chalybeum</i> Engl., Rutaceae	Root	Soaked in water	Orally

IV. NDDDB suggested<sup>11</sup>.

#### First preparation

- Ingredients for one dose: Betel Leaves 10 number, Black pepper- 10 grams, salt: 10 grams; jaggery as required.
- Preparation: Blend to form a paste and mix with jaggery.
- Administration: Orally, one dose every three hour first day and from second day three doses daily for three weeks.
- Caution: Each dose should be freshly prepared.

#### Second preparation

- Ingredient for two doses: Garlic-two pearls, Coriander- 10 grams, Cumin- 10 grams, Thulsi-one handful, Bay leaves- 10 grams, Black pepper- 10 grams, Betel leaves- 5 numbers, Shallots- 2 bulbs, Turmeric powder-10 grams, Chirata leaf powder- 30 grams, Sweet basil-one handful, Neem leaves-one handful, Aegle marmolos (BEL) Leaves-one handful, Jaggery-100 grams.
- Preparation - blend to form a paste and mix with jaggery.
- Administration: Orally, one dose every three hour first day and from second day two doses daily (morning and evening) till condition resolve.
- Caution: Each dose should be freshly prepared.

#### For external wound

- Ingredients: Acalypha Indica leaves - one handful, Garlic- 10 pearls, Neem leaves - one handful, Coconut or Sesame oil- 500 ml, turmeric powder- 20 grams, Mehendi leaves - one handful, Tulsi leaves - one handful.
- Preparation: Blend all the ingredients and mix with 500 ml Coconut or Sesame oil and boil and bring to cool.
- Administration: Clean the wound and apply directly.
- If maggots are seen: Apply Anona leaf paste or camphorated Coconut oil for the first day

### III. Conclusion

The use of medicinal plants to manage the clinical conditions can reduce the loss due to the decreased productivity, expenses incurred in allopathic medicine, and the other side effects of allopathic medicine.

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