Ethnoveterinary herbal practices to reduce antibiotic use in the dairy sector

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What is EVM

EVM is the compilation of people’s traditional practices, knowledge, and beliefs to keep their animals healthy, productive and performing, using local resources in a sustainable manner.
Major disease conditions captured through Information Network on Animal Productivity & Heath (INAPH)
Management of sub-clinical mastitis

Pooled milk sample
- Each farmer
- CMT at DCS

Individual animal milk sample
- Identify CMT positive animal

CMT positive animal
- TSC for 10 days
- Repeat if not recovered
Control of sub-clinical mastitis

- Around 7,77,108 milk samples screened for Sub-clinical mastitis by CMT
- After TSC supplementation 69.92% recovered (Dutta et al 2017)
- After repeat TSC supplementation recovery was 89% (Dutta et al 2017)
- TSC supplementation effectively prevents the progression of sub-clinical mastitis to clinical form
- Recorded an increase of 10-15% in milk production in most of the animals after TSC supplementation.
- Use of antibiotics for treatment of sub-clinical could be avoided

### Management of clinical mastitis by EVM

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Parts used</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Aloe vera</em></td>
<td>Leaves</td>
</tr>
<tr>
<td><em>Curcuma longa</em> (Turmeric)</td>
<td>Rhizome</td>
</tr>
<tr>
<td>Calcium hydroxide</td>
<td>Powder</td>
</tr>
<tr>
<td><em>Citrus limon</em> (Lemon)</td>
<td>Fruit</td>
</tr>
</tbody>
</table>

Sabar dairy – 67,833 cases – **85% clinical recovery**
Mastitis Control Popularization Project (MCPP)

- >1500 DCSs
- 24 Milk Unions
- 9 States

**Cases treated by EVM** – 92,917

**Clinically recovered** – 72,129

**Recovery rate** – 79.78%
Clinical recovery observed for various conditions after EVM supplementation

- External parasites: 2,749 (86.61%)
- Wound: 3,629 (79.42%)
- Worm infestation: 7,979 (88.73%)
- Anoestrus: 13,655 (85.95%)
- Indigestion: 14,129 (86.62%)
- Fever: 64,223 (84.88%)
- Diarrhoea: 65,508 (85.95%)
NDDB’s experience in EVM supplementation

Since 2016-17

Training & Extension

>6150 Animal Husbandry personnel trained in EVM

EVM records

3.61 Lakh cases recorded for various ailments

EVM Demo plots

378 AVM demo plots established
NDDB’s observation on EVM effectiveness

<table>
<thead>
<tr>
<th></th>
<th>Treated</th>
<th>Cure</th>
<th>Clinical recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastitis*</td>
<td>1.17</td>
<td>0.93</td>
<td>79%</td>
</tr>
<tr>
<td>Other ailments #</td>
<td>2.44</td>
<td>2.01</td>
<td>82%</td>
</tr>
</tbody>
</table>

* Includes acute, sub clinical and chronic cases.
# Includes 29 other common ailments like fever, diarrhoea, FMD, repeat breeding etc.

Cases are being recorded through an online reporting system.
Extension and Training on EVM supplementation

- Module in farmer training at NDDB – Demo plot
- Short video of application of EVM supplementation in various health conditions in different languages – YouTube
- EVM Brochure in different languages

Booklets and videos in 14 languages
Publications

**Indian Journal of Dairy Science**

*Ethnoveterinary medicine for responsible dairying*

Dilip Rath\(^3\), Girish Kumar Sharma\(^1\) and Yogesh C. Joshi\(^2\)

**Summary**

Mastitis control: a sustainable model for the developing world

**Author**

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**Abstract**

Alternative approaches were applied for bovine mastitis management thereby minimizing the use of antibiotics. Milk samples (n=41,181) at dairy cooperative society (DCS) level were screened by California mastitis Test (CMT) for subclinical mastitis (SCM) and positive animals were given toodoo-odoe (TDO) against SCM which resulted in reduction in the incidence of SCM as detected by CMT by about 60% in span of three years. Management of clinical mastitis (CM) through Ilasu-Veterinary Herbal Preparations (IVHP) was undertaken by application of herbal paste comprising 12 were, turmeric and lime on the affected udder which resulted in significantly managing around 80% of the CM cases (n=0.4,174) using IVHP alone in the last two years. The mastitis control programme is being implemented by NDB in 24 milk unions covering nearly 1500 DCs targeting more than 2,000,000 lactating animals. Characterization of bacterial agents involved in mastitis was also undertaken in this project.

**Introduction**

Mastitis control through Ilasu-Veterinary Herbal Preparations (IVHP) is gaining significant interest among farmers in India. IVHP are also cost effective, farmer and environment friendly, and can maintain antibiotic usage, resulting in lower antibiotic residues in milk of dairy animals, thus reducing the probability of development of antibiotic resistance (ABR). Near et al. (2017) reported that a combination of Ilasu Drug, Curcuma longa and calcium hydroxide was effective in managing bovine mastitis. For this Ilasu-Veterinary Herbal Preparation (IVHP) combination, the mechanism of action through molecular docking studies has been reported by Pranasari et al. (2017).

**Objective**

The study has been conducted with the objectives to:

1. Understand the utility of treating alternate therapy for management of sub-clinical mastitis by TDO and clinical mastitis by IVHP, thus reducing the use of antibiotics for mastitis treatment.
2. Profiling the organisms, causing clinical and sub-clinical mastitis under Indian field, and their antibiotic susceptibility.
Conclusion

• EVM is
  • Effective
  • Farmer friendly
  • Affordable
  • Sustainable
  • Environment friendly - No residues or resistance

• EVM requires
  • Popularization
  • Mainstreaming and focus
  • Research on formulations
Our Team

Dr. G K Sharma

Dr. SK Rana

Dr. Pankaj

Dr. Sagar

Dr. Hari Kumar

Dr. Surendra

Dr. Vijay
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Thank You