

Original Research Article

A Research on Herbal Treatment for Gut Related Issues in Cattle by the Administration of Digestovet Bolus

Supriya Singh¹, Ashwin Singh Chouhan^{1*}, Anam Khan¹, Santosh Choudhary¹¹Jai Narain Vyas University (New Campus), Jodhpur, Rajasthan, India**Article History**

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Abstract: The term "microbiota" refers to the complex, delicately balanced ecological community that makes up the human body and contains symbiotic and pathogenic bacteria. The gut-brain-immune axis, a bidirectional communication route, is a vital component of this system of living beings in integrating the nervous, endocrine, and immune systems. Despite the wealth of research in human medicine, the relationship between unusual behavioural phenotypes and changes in animals gut microbiota has received little attention in the literature in the past. The scientific word for conventional animal healthcare is ethno veterinary medicine, which offers affordable options to allopathic medications. In this research work we prepared a remedy (Digestovet bolus) effective for all gastrointestinal issues, including anorexia, indigestion, off-feed, a lack of ruminating, impaction, etc. Digestovet Bolus is traditionally given orally to working bullocks to treat anorexia and off-feed. It works well for digestive disorders, diarrhoea, and impaction, lack of rumination, repeated breeding/reproductive issues, and internal parasites. It is additionally utilized as an immunity booster to stave off illnesses including blue tongue, fever, mastitis, and hemorrhagic sepsis.

Keywords: Ethno-veterinary; Digestovet; Livestock; Packaging; Herbal; Treatment etc.

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INTRODUCTION

The scientific word for conventional animal healthcare is ethno veterinary medicine, which offers affordable options to allopathic medications. Ethno-veterinary medicine is another name for the practice of using native knowledge to cure animal ailments. This remedy is effective for all gastrointestinal issues, including anorexia, indigestion, off-feed, a lack of ruminating, impaction, etc. It is customary to give Digestovet Bolus orally to working bullocks to help them recover from anorexia and being off feed. Over the past 20 years, "Digestovet Bolus" has been given right away to more than 50,000 animals (cattle, buffaloes, sheep, and goats) and informally to many thousands more through trained individuals. In the animal health field, the Digestovet Bolus has been prepared and given to animals [1].

When given to animals (cattle, buffaloes, sheep, and goats), Digestovet Bolus has the following advantages: It is helpful for indigestion, eating disorders, diarrhea, lack of rumination, impaction, repeat breeding/reproductive issues, and internal

parasites [2]. Additionally, it serves as an immunity booster to ward off illnesses like blue tongue, a high body temperature mastitis, and hemorrhagic septicaemia. Animal disorders such as diarrhea/constipation, poultry disease, tympany, endoparasites, and blue tongue disease in sheep and goats are treated with Digestovet Bolus [3].

Packaging of Digestovet Bolus

Vacuum Packaging

- The majority of the air in the container is eliminated during airtight vacuum packing. To maintain the vacuum, the packaging is then hermetically sealed. This method has the following advantages: [4]
- It prevents oxidation or slows the oxidation process, protecting the contents.
- However, a particular quantity of oxygen remains in the packaging, restricting the use of vacuum packaging to specific products.
- It prevents the buildup of moisture.
- It blocks the development of oxygen-dependent microorganisms and the reproduction of insects.



Figure 1: Digestovet Bolus



Figure 2: Vaccum Packaging Machine

Nitrogen Flush Packaging

Modified atmospheric packaging (MAP) includes packaging for nitrogen flush. By replacing the oxygen gas in the containers with nitrogen gas, food goods are kept fresh. It entails capping a package after purging it with nitrogen gas to halt oxidation and microbial development, which slows down the degradation process [5]. Nitrogen is a harmless inert gas that is abundant in the atmosphere, making nitrogen flush packaging a practical means of preventing food

deterioration. Therefore, packagers should understand how to correctly use nitrogen flushing [6].

Getting this composition right has great benefits:

- Extended shelf life of the product
- Pests and contamination don't have a chance to grow
- Since there is no use of chemicals it is suitable for organic products
- Quality control



Figure 3: Nitrogen Flush Packaging Machine

MATERIALS & METHODS

Instruments

Table 1: Instruments Used [7]

| S.No. | Name | Company |
|-------|---------------|---------|
| 1 | Mixer Grinder | Philips |

Table 2: Ingredients Used in Digestovet Bolus [4]

| S.No. | Ingredients | Scientific Name |
|-------|---|----------------------------|
| 1 | Black Pepper (Kalimirch) | Piper nigrum |
| 2 | Cumin (Jeera) | Cuminum cyminum |
| 3 | Coriander Seeds (Dhaniya) | Coriandrum sativum |
| 4 | Fenugreek (Methi) | Trigonella foenum graecum |
| 5 | Carom Seed (Ajwain) | Trachyspermum Ammi |
| 6 | Ginger (Adrak) | Zingiber officinale |
| 7 | Turmeric (Haldi) | Curcuma longa |
| 8 | Aloe Vera (Gheekumari) | Aloe Barbadensis miller |
| 9 | Heart Leaved Moonseed (Galoy Stem and Leaves) | Tinospora cordifolia |
| 10 | Garlic (Lahsun) | Allium Sativum |
| 11 | Red Pepper /Chillies (Lallmirch) | Capsicum |
| 12 | Betel Leaves (Paan) | Piper bettle |
| 13 | Curry Leaf (Kari Patta) | Murraya koenigii |
| 14 | Holy Basil (Tulsi Leaves) | Ocimum tenuiflorum |
| 15 | Tanner's Cassia (Tarwar Leaves and Flowers) | Cassia auriculata |
| 16 | Coconut (Nariyal) | Cocos nucifera |
| 17 | Jaggery (Gud) | Non-centrifugal cane sugar |
| 18 | Rock Salt (Kala Namak) | Halite |
| 19 | Baking Soda (Meetha Soda) | Sodium bicarbonate |

Table 3: Functions of Ingredients of Digestovet Bolus [8]

| S.No. | Ingredients | Scientific Name | Functions |
|-------|---|----------------------------|--------------------------------------|
| 1 | Black Pepper (Kalimirch) | Piper nigrum | Digestion stimulant |
| 2 | Cumin (Jeera) | Cuminum cyminum | Digestive, carminative, galactagogue |
| 3 | Coriander Seeds (Dhaniya) | Coriandrum sativum | Digestion stimulant |
| 4 | Fenugreek (Methi) | Trigonella foenum graecum | Appetite stimulant |
| 5 | Carom Seed (Ajwain) | Trachyspermum Ammi | Anti-inflammatory |
| 6 | Ginger (Adrak) | Zingiber officinale | Gastric stimulant |
| 7 | Turmeric (Haldi) | Curcuma longa | Anti-inflammatory |
| 8 | Aloe Vera (Gheekumari) | Aloe Barbadensis miller | Antiseptic (wound healing) |
| 9 | Heart Leaved Moonseed (Galoy Stem and Leaves) | Tinospora cordifolia | Boost immunity and improve digestion |
| 10 | Garlic (Lahsun) | Allium Sativum | Digestion stimulant, antiseptic |
| 11 | Red Pepper /Chillies (Lallmirch) | Capsicum | Digestion stimulant |
| 12 | Betel Leaves (Paan) | Piper bettle | Appetite inducer and carminative |
| 13 | Curry Leaf (Kari Patta) | Murraya koenigii | Neuro-degenerative disease |
| 14 | Holy Basil (Tulsi Leaves) | Ocimum tenuiflorum | Immunity enhancer |
| 15 | Tanner's Cassia (Tarwar Leaves and Flowers) | Cassia auriculata | Hypo glycaemic |
| 16 | Coconut (Nariyal) | Cocos nucifera | Antifungal and antibacterial |
| 17 | Jaggery (Gud) | Non-centrifugal cane sugar | Improve Digestion |
| 18 | Rock Salt (Kala Namak) | Halite | Milk Production |
| 19 | Baking Soda (Meetha Soda) | Sodium bicarbonate | Animal Nutrition |

Table 4: Formula of digestovet bolus

| S.No | Ingredients | Quantity |
|------|---|--------------|
| 1 | Black Pepper (Kalimirch) | 1 gm |
| 2 | Cumin (Jeera) | 1gm |
| 3 | Coriander Seeds (Dhaniya) | 2 gm |
| 4 | Fenugreek (Methi) | 2 gm |
| 5 | Carom Seed (Ajwain) | 1 gm |
| 6 | Ginger (Adrak) | 5 gm |
| 7 | Turmeric (Haldi) | 5 gm (fresh) |
| 8 | Aloe Vera (Gheekumari) | 10 gm |
| 9 | Heart Leaved Moonseed (Galoy Stem and Leaves) | 8 gm |
| 10 | Garlic (Lahsun) | 5 gm |
| 11 | Red Pepper /Chillies (Lallmirch) | 5 gm |
| 12 | Betel Leaves (Paan) | 1 Leaves |
| 13 | Curry Leaf (Kari Patta) | 10 gm |
| 14 | Holy Basil (Tulsi Leaves) | 5 gm |
| 15 | Tanner's Cassia (Tarwar Leaves and Flowers) | 10gm |
| 16 | Coconut (Nariyal) | 9 gm |
| 17 | Jaggery (Gud) | 10gm |
| 18 | Rock Salt (Kala Namak) | 5 gm |
| 19 | Baking Soda (Meetha Soda) | 5 gm |

Process for Preparation

1. First grind dry items like black pepper, jeera, coriander seeds, fenugreek, ajwain etc.
2. Then grind all the fresh herbs viz. Aloe vera, curry leaf, garlic, tulsi, ginger
3. Then further some fresh herbs are grinded like turmeric, coconut, galo and tarwar.
4. After that mix together properly both the dry items and fresh herbs respectively in a proper manner.
5. Now add jaggery (after making into small pieces), and rock salt, (sodium bicarbonate) and mix it thoroughly.
6. Finally, make a bolus of 50 g each (lemon fruit size) and sprinkle turmeric powder over them. This will ensure prevention of fungal contamination.

Dosage & Administration

- Make a bolus of 100 gm each (lemon fruit size) and administer orally.
- It can be given monthly once preferably in empty stomach.
- For young animals (calf, sheep or goat) give half the quantity or reduce the quantity according to the body weight of animals.
- The above preparation will be good for all digestive problems viz. anorexia, indigestion, impaction.
- This will also give some relief for repeat breeding/reproductive problems, internal parasites, act as preventive medicine for Foot and Mouth Disease, Blue Tongue, fever, mastitis, Hemorrhagic septicemia [2].

Evaluation Test of Digestovet Bolus

1. **Organoleptic Characteristics:** The organoleptic

properties, including physical appearance, colour, texture and smell. The formulation was Brownish – green in colour and had sharp smell. [9]

2. **Disintegration Test:** The disintegration test is used to show how quickly the bolus breaks down into smaller particles, allowing for a greater surface area and availability of the bolus when taken by a animal. Using water or the specified medium as the immersion fluid, maintained at $37^{\circ} \pm 2^{\circ}$.
3. **Hardness Test:** Hardness Test is an important physical property of a bolus. It is a principal measure of mechanical strength. Bolus hardness indicates the capability of the formulation to withstand mechanical shocks during handling in manufacturing, packaging.
4. **Weight Variation:** The variation of weight of individual bolus is an indication of the corresponding variation in the drug content. The objective of the weight variation test is to ensure good manufacturing practices (GMP), appropriate size of the bolus and the content uniformity of the formulation.
 - Take 10 bolus and weight individually.
 - Calculate the average weight.

RESULTS & DISCUSSIONS**1. Organoleptic Characteristics:**

- **Physical Appearance:** Solid
- **Colour:** Brownish-Green
- **Smell:** Sharp smell
- **Texture:** Rough

2. **Disintegration Test:** Disintegration test of Digestovet Bolus is done using water or the specified medium as the immersion fluid, maintained at $37^{\circ} \pm 2^{\circ}$. The time taken in the disintegration of Digestovet Bolus is 10 minutes.

3. Hardness Test: Hardness Test is an important physical property of a bolus. It is a principal measure of mechanical strength. Bolus hardness indicates the capability of the formulation to withstand mechanical shocks during handling in manufacturing, packaging. The Hardness Test

result of the bolus is = 2.25 kg/cm² - 3.5 kg/cm²

4. Weight variation Test: Ten boluses were randomly sampled and weighed individually with a digital weighing balance.

Average Weight Total Individual Weight of Boluses in gm
 ⇨ Total No. of Bolus Samples

Total weight of Boluses = 120 gm
 Average Weight = 12 gm

The Digestovet Bolus has been prepared and administered to animals traditionally. In this research a modified form of digestovet bolus was prepared and various evaluation tests were carried out on them to check their primary characteristics and suitability to animals. The complete disintegration value of 10 minutes suggested that the bolus would be easily soluble in the gut after administration. Other evaluation

parameters also yielded desirable results. There is no restriction of season or place provided medicinal plants and other ingredients available locally. A few medicinal plants if not available can be substituted with other plants based on experience or by consulting with local herbal healers. The digestovet bolus can be used in other disease like tympany, retention of placenta, infertility, blue tongue disease and ectoparasites.

Table 4: Weight Variation of Bolus

| Sample | Individual weight | Average weight |
|--------------|-------------------|----------------|
| Bolus No. 1 | 13 gm | 12 gm |
| Bolus No. 2 | 12 gm | |
| Bolus No. 3 | 11 gm | |
| Bolus No. 4 | 12 gm | |
| Bolus No. 5 | 11 gm | |
| Bolus No. 6 | 13 gm | |
| Bolus No. 7 | 12 gm | |
| Bolus No. 8 | 10 gm | |
| Bolus No. 9 | 13 gm | |
| Bolus No. 10 | 13 gm | |

CONCLUSION

The extent of veterinary medicine is broad, encompassing all domesticated and wild animal species, as well as a large spectrum of ailments that may impact various species. Animals can receive Digestovet bolus orally, ideally on an empty stomach. Diseases like anorexia, indigestion, impaction, and diarrhoea can benefit from the Digestovet bolus preparation. More research in this field should be encouraged because cattle suffer from a large number of diseases which requires attention at the earliest. It is also necessary for maintaining our ecosystem.

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Ethical Approval

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Declaration of Competing Interest

All authors do not report any conflicts of interest in the writing of this letter.

REFERENCES

- Ahmed, A.A., & Bassuony, N.I. (2009). Adding Natural Juice of Vegetables and Fruitage to Ruminant Diets (B) Nutrients Utilization, Microbial Safety and Immunity, Effect of Diets Supplemented with Lemon, Onion and Garlic Juice Fed to Growing Buffalo Calves. *World Journal of Agricultural Sciences*, 5(4), 456-465.
- Allen, P.C., Danforth, H.D., & Augustine, P.C. (1998). Dietary modulation of avian coccidiosis. *International Journal for Parasitology*, 28, 1131-1140.
- Arzewska-Wlosek, A., & Swiatkiewicz, S. (2012). The

- effect of a dietary herbal extract blend on the performance of broilers challenged with *Eimeria* oocysts. *Journal of Animal Feed Science*, 21, 133- 142.
4. Lavinia, S., Gabi, D., Drinceanu, D., Stef, D., Daniela, M., Julean, C., Ramona, T., & Corcionivoschi, N. (2009). The effect of medicinal plants and plant extracted oils on broiler duodenum morphology and immunological profile. *Romanian Biotechnological Letters*, 14, 4606-4614.
 5. Hirasu K., & Takemasa, M. (1998). Spice science and technology. Marcel Dekker, New York, p. 220.
 6. Ganguly, S. (2013). Promising physiological effect of various biological and inorganic agents as feed supplements for livestock and poultry with discussion on research proven fact and establishment on concept: an elaborate and specialized review. *Journal of biological and scientific opinion*, 1(3), 235238.
 7. Muanda, F., Kone, D., Dicko, A., Soulimani, R., & Younos C. (2011). Phytochemical Composition and Antioxidant Capacity of Three Malian Medicinal Plant Parts. *Evidence-Based Complementary and Alternative Medicine*, 21-28.
 8. Huyghebaert, G., Ducatelle, R., & Van Immerseel, F. (2011). An update on alternatives to antimicrobial growth promoters for broilers. *Veterinary Journal* 187, 182–188.
 9. Mirzaei-Aghsaghali, A. (2012). Importance of medical herbs in animal feeding: A review. *Annals of Biological Research*, 3(2), 918-923.

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