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Efficacy of *Tamarind (Tamarinda indica)* seed coat powder on the control of wound myiasis in pigs in an organized farm at Tamil Nadu

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Abstract

The aim of the study to find out low cast herbal preparation to control myiasis in pig. The pigs were examined for the presence of myiasis and *Tamarind* seed coat powder was prepared to control myiasis in pigs. A total 56 pigs (White Yorkshire and crossbred pigs) were examined for the presence of maggot infestation at Livestock Research Station, Kattupakkam, Kanchipuram district, Tamil Nadu. Overall prevalence of myiasis in pig was 48.21%. The efficacy of *Tamarind* seed coat (TSC) powder was carried out in 27 pigs which were naturally infested with maggot wound at Livestock Research Station, Kattupakkam, Tamil Nadu. In all the pigs, no maggots observed after 4-5th day after treatment with *Tamarind* seed coat powder and complete healing of the wound was noticed after 7-8th day, indicating the application of *Tamarind* seed coat was effective in treating maggot wound on pigs.

Keywords: Control, Pig, *Tamarind* seed coat powder, Wound myiasis

1. Introduction

Myiasis is a disease condition caused by the feeding of parasitic fly larvae in the tissues of live vertebrates [1]. Massive infestations can lead to death if not treated at the early stage [2]. *Chrysomya bezziana* is the most common myiasis producing fly primarily responsible for causing nasal, oral, ocular, cutaneous and vaginal myiasis of livestock in India [3]. Many drugs are available to control wound myiasis, but they are harm full to the tissues and cause severe resistance due to repeated usage of same drugs [4]. Plants have been used in the treatment of wound myiasis in livestock as an alternative to the commercial insecticides [5]. *Tamarind* seed is one of the common and cheaply available natural products in India. *Tamarind* seed is used to treat boils, dysentery, eye diseases, ulcers, bladder stones and diabetes [6]. Stem, bark and fruit of *Tamarindus indica* were tested for their antifungal effect [7, 8]. *Tamarinda indica* has potential wound healing ectoparasiticidal effect and also effective to control coccidiosis in goats [9,10,11] Hence, keeping in view of the above considerations, this study has been carried out to study the prevalence and control of myiasis in pigs by using *Tamarind* seed coat powder.

2. Materials and Methods

2.1 Study area and sample collection

A total 56 pigs (White Yorkshire and crossbred pigs) were examined for the presence of maggot infestation at Piggery section, Post Graduate Research Institute in Animal Sciences, Kattupakkam, Kanchipuram district, Tamil Nadu. The efficacy of *Tamarind* seed outer coat (TSC) powder was carried out in 27 pigs which were naturally infested with maggot wound. All the animals were inspected individually for the presence of maggots in the wound. Larvae were recovered from the wound and were identified [2]. The length, width and depth of the wound, type and condition of the wound and duration of the wound healing process was recorded. Symptoms exhibited by the animals were also recorded.

2.2 Preparation of *Tamarind* seed coat powder

Tamarind seeds were collected, pan fried and ground to remove outer coat. The outer coat was finely powdered. *Tamarind* seed outer coat powder (TSOCP) was mixed with coconut oil in a ratio of 2:1 [10, 12].

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2.3 Efficacy of *Tamarind* seed coat powder on wound myiasis in pigs

Tamarind seed outer coat powder (TSOCP) paste was applied twice daily on pigs which were naturally infested with maggots.

The efficacy of TSOCP was assessed on the basis of reduction of smell, purulent discharge, drying of wound, granulation of tissue formation and epithelisation.

3. Results and Discussion

Overall prevalence of myiasis in pigs in an organized farm at Tamil Nadu was 48.21% (27/56). Similarly, 53.33% myiasis was observed in Ghungroo breed pigs at Nagaland^[13]. In this study, *Chrysomya bezziana* and *Musca domestica* was collected from pigs. Whereas,^[14] observed *Cochliomyia hominivorax*, *Chrysomya megacephala*, and *Ornidia robusta* in vulva, ear, and leg of pigs in Argentina.

Recovered larvae from pigs were identified as *Chrysomya bezziana* and *Musca domestica*. Among the infested pigs, maggots were found to be more on ear (44.44%) followed by tail (22.22%), anus (14.81%), body (11.11%) and leg (7.41%) (Table 1). Maggots were observed mostly on the ear (44.44%) followed by tail, anus, body and leg. Likewise, maximum number of maggots in the wound in ears was observed in sheep¹⁰. In the present study, highest prevalence of wound myiasis on ear and tail may be due to tagging and docking respectively, which predisposes the maggot formation in pigs. Skin folding at forehead region predisposes the maggot wound formation which affects the gross productivity in indigenous pig^[13].

The size of the wound varied from 2 to 3.8cm in diameter and from a few millimeters to 1.2 cm in depth. Moderate to severe bleeding was observed on wounds. The surrounding skin was tense, hot to touch and sometimes oedematous. In older wounds, epidermal necrosis was seen around their edges where the exudate touched the skin was soiled (Plate 1). The infested pigs showed the symptoms of restlessness, anxiety and reluctance to feed. Often trying to bite, lick or kick the wound areas.

Pigs with wound myiasis was treated with TSC powder and there was a no maggot observed after 4-5th day after treatment and complete healing of the wound was noticed after 7-8th day (Plate 1). There was a no maggot observed after 4-5th day after treatment with TSC powder in pigs with wound myiasis and complete healing of the wound was noticed after 7-8th day, indicating the application of *Tamarind* seed coat was effective in treating maggot wound on pigs. *Tamarind* seed coat powder proved to be effective to control myiasis due to *Chrysomya bezziana* and *Musca domestica* in cattle and sheep^[10,12]. Application of Topicura in maggoted and traumatic wounds in pigs was found effective in pigs^[15]. Mixture of turpene oil, iodine, neem and camphor cured maggot infested inter-digital wound in goats^[16]. Acetone leaf extracts of *Aloe zebrina*, *Clausena anisata*, *Erythrina lysistemon* and *Spirostachys africana* at 10mg/ml and 50mg/ml was able to control 82 to 100% and 78 to 91% emergence of adult blow fly (*Lucilia cuprina* and *Chrysomya marginalis*) respectively^[17]. Tea tree oil from *Melaleuca alternifolia* (terpinen-4-ol chemotype) was effective against different stages of *Lucilia cuprina*^[18].



a & b. Myiasis near left eye before – Day 1 (left) and after treatment – Day 8 (right)



c & d. Myiasis near vulva before – Day 1 (left) and after treatment – Day 7 (right)



d & e. Myiasis near right ear before – Day 1 (left) and after treatment – Day 8 (right)



f & g. Myiasis near left ear before – Day 1 (left) and after treatment – Day 8 (right)

Plate 1: Treatment of wound myiasis with *Tamarind* seed coat powder**Table 1:** Prevalence of wound meiosis in pigs

Sex / Location of larvae in pig	<i>Chrysomya bezziana</i>		<i>Musca domestica</i>		No. of pigs infested	Percentage
	Male	Female	Male	Female		
Ear	2	7	1	2	12	44.44
Body	1	2	-	-	3	11.11
Leg	1	1	-	-	2	7.41
Tail	1	5	-	-	6	22.22
Anus	1	2	-	1	4	14.81
Total	6	17	1	3	27	

4. Conclusion

It was concluded that, incidence of incidence of wound myiasis in pig was 48.21% and the wound myiasis was found to be more on ear followed by tail, anus, body and leg. *Tamarind* seed outer coat powder has good maggotocidal and wound healing properties without any side effects and serves as a cheap and easily available source to cure wound myiasis in pigs. Further, this preparation could be easily popularized among the farmers as a low cost ready to use technology to cure wound myiasis of livestock.

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