International Journal of Veterinary Sciences and Animal Husbandry 2025; 10(6): 325-326

ISSN: 2456-2912
NAAS Rating: 4.61
VET 2025; 10(6): 325-326

www.veterinarypaper.com
Received: 12-04-2025
Accepted: 15-05-2025

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Laboratory study on biorhythm of *Oestrus ovis*

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DOI: https://www.doi.org/10.22271/veterinary.2025.v10.i6e.2347

Abstract
The present study revealed the emergence of adult *Oestrus ovis* from the larva collected from the nasal cavities of sheep under laboratory conditions in and around Hyderabad. Maggots collected from the nasal cavities of sheep slaughtered were identified as belonging to *Oestrus ovis* by microscopic examination in the laboratory. The development of third stage larva was studied in the laboratory by allowing the larva to penetrate in to the soil for pupation and emergence of adult fly in a beaker kept inside the fly cage. The fly emerged out after 28 days of observation. Based on the morphological features, the third stage larva and adult fly were confirmed as belonging to *Oestrus ovis*.

Keywords: *Oestrus ovis*, nasal cavities, third stage larva, morphological, laboratory

Introduction
Sheep play an important role in the economic cycle in the rural and urban areas as a source of meat, leather and wool. Sheep nasal botfly is the member of the order Diptera. Its larvae are well known as myiasis producing agents. The fly is small grey green with black spots on the thorax, and covered with short brown hairs. It is widely spread in the tropics throughout the year specially in the hot season. Infestation of sheep with the nasal botfly affects sheep health and sheep production, the weight gain, milk yield and fleece production. Annoyance and irritation by *Oestrus ovis* larvae causes sheep to lose valuable grazing time, and suffer from mucopurulent discharge and difficult respiration. It also causes pathological damage of the nasal cavities. The present study carried out to know about the morphological characteristics and life cycle of *Oestrus ovis*.

Materials and Methods
Oestrus ovis larvae were collected from the heads of slaughtered sheep from various slaughter houses in and around Hyderabad. Clearing and mounting of different stage larva by the method followed by Kiran *et al*. (2024) [4].
A total of 92 larvae were collected from 50 dissected heads of slaughtered sheep and identified as *Oestrus ovis*. Out of 92 larvae collected, 34 were identified as L1, 38 as L2 & 20 as L3. The third stage larvae then transferred to a beaker containing loose soil and kept for pupation at room temperature and checked every day for fly emergence.

Results
Out of 20 larvae reared, 8 flies emerged after 28 days and 12 larvae reared couldn't transform into flies. The fly emergence percentage was 40%. Based on morphological features of adult fly and microscopic examination of L2 and L3 they were confirmed as belonging to *Oestrus ovis*.

Discussion
The percentage of adult flies emerged were higher than those recorded by Breev *et al*. (1980) [1] and Alani *et al*. (2018) [3] obtained a hatch rate of 35%, but lower than those reported by Omer *et al*. (2010) [2].

Who found a percentage of 57.4% when larvae were incubated at 28°C and these rates increased up to 65.6% when reared at 38°C. Such differences could attributed to seasonal variation in which temperature is considered as most important factor for fly emergence.

Fig 1: a) Collection of different stages of larvae, b) 3rd stage larvae kept for pupation, c) Pupal case and d) Emergence of fly

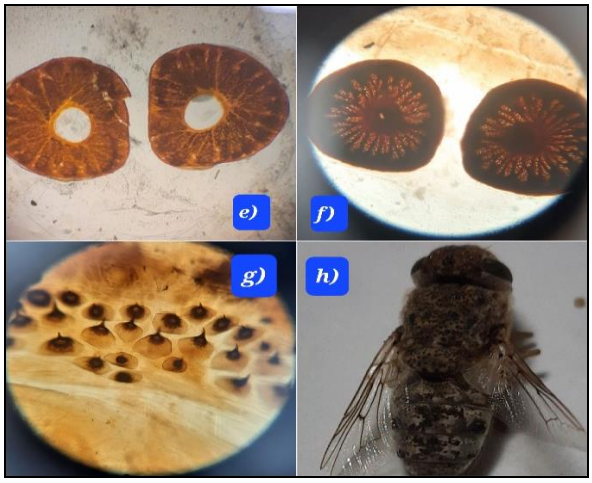

Fig 2: e) Posterior spiracles of L_2, f) D' Shaped dark brown posterior spiracles of L_3 and stigmal plates with radially arranged numerous respiratory holes, g) Ventral spines of L_3, h) Adult fly

Fig 3: A) L_1 length 8mm, B) L_2 length 14mm, C) Curved oral hooks of larvae

Conclusion

This study provides comprehensive insights into the life cycle, morphological characteristics, and developmental stages of *Oestrus ovis* in and around Hyderabad. Our findings confirm that the third-stage larvae collected from the nasal cavities of slaughtered sheep successfully pupated and emerged as adult flies under controlled laboratory conditions, with an emergence rate of 40%. Microscopic examination of larvae at various developmental stages and the adult fly corroborated their identification as *O. ovis*. The presence of *O. ovis* in this region underscores the importance of monitoring and controlling this parasitic infestation.

Acknowledgement

The authors are thankful to college of Veterinary science, PVNRTVU, Rajendranagar, Hyderabad for providing necessary facilities for research work.

Conflict of Interest

Not available

Financial Support

Not available

Reference

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How to Cite This Article
Ankitha S, Kumar MU, Dasmabai B, Kumar LR, Kiran AV, Anusha K. Laboratory study on biorhythm of *Oestrus ovis*. International Journal of Veterinary Sciences and Animal Husbandry. 2025;10(6):325-326.