



## EXAMINATION OF ENTEROBIUS VERMICULARIS EGGS IN STUDENT OF SDN 12 LANGKAI PALANGKA RAYA IN 2025

## PEMERIKSAAN TELUR ENTEROBIUS VERMICULARIS PADA SISWA SDN 12 LANGKAI, PALANGKA RAYA TAHUN 2025

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### Abstract

*Enterobius vermicularis* is a small intestinal nematode that causes enterobiasis infection. This infection is most commonly found among elementary school-aged children. The aim of this study was to describe the microscopic findings of *Enterobius vermicularis* eggs among first- and second-grade students of SDN 12 Langkai, Palangka Raya City, in 2025. This research employed a descriptive approach, with specimen collection carried out using the anal swab technique. Samples were examined microscopically after staining with 5% eosin solution, and observations were performed under a light microscope using 10× and 40× objective lenses. The results showed that no eggs or larvae of *Enterobius vermicularis* were detected in any of the samples, indicating that all samples were negative. Based on these findings, it can be concluded that no cases of enterobiasis infection were found among the first- and second-grade students of SDN 12 Langkai, Palangka Raya City.

**Keywords :** *Enterobius vermicularis*, enterobiasis, elementary school students, anal swab.

### Abstrak

*Enterobius vermicularis* merupakan nematoda usus berukuran kecil yang menyebabkan infeksi enterobiasis. Infeksi ini paling sering ditemukan pada populasi anak usia sekolah dasar. Tujuan penelitian ini adalah untuk mengetahui gambaran pemeriksaan telur *Enterobius vermicularis* pada siswa kelas 1 dan kelas 2 SDN 12 Langkai Kota Palangka Raya Tahun 2025. Penelitian ini menggunakan pendekatan deskriptif dengan pengambilan spesimen pemeriksaan melalui teknik anal swab yang diperiksa secara mikroskopis dengan pewarnaan menggunakan larutan eosin 5%, kemudian diamati di bawah mikroskop dengan perbesaran lensa objektif 10× dan 40×. Hasil penelitian menunjukkan bahwa seluruh sampel tidak terdeteksi adanya telur maupun larva *Enterobius vermicularis*, sehingga seluruh hasil dinyatakan negatif. Berdasarkan hasil penelitian yang telah diperoleh, dapat disimpulkan bahwa tidak ditemukan adanya infeksi enterobiasis pada siswa maupun siswi kelas 1 dan 2 di Sekolah Dasar Negeri 12 Langkai, Kota Palangka Raya.



**Kata Kunci :** *Enterobius vermicularis*, enterobiasis, siswa sekolah dasar, anal swab.

## 1. INTRODUCTION

*Enterobius vermicularis* is a small intestinal nematode that causes enterobiasis. This infection is most commonly found among primary school-aged children. It is characterized by perianal pruritus, which occurs as a result of nocturnal migration of the female worm to the perianal region to deposit eggs. Other frequently reported symptoms include sleep disturbances, irritability, decreased appetite, and, in chronic infections, potential contributions to growth impairment and reduced quality of life in children (Lalangpuling, et al., 2020; Febriantika, et al., 2023).

The prevalence of enterobiasis in Indonesia varies considerably across regions. Several studies conducted among primary school children have reported persistently high infection rates, with prevalence ranging from 5% to over 40%, depending on sanitation conditions and individual hygiene practices (Lalangpuling, 2020; Putri, et al., 2020). Data from the Indonesian Ministry of Health (2021) indicate that soil-transmitted helminth infections, including enterobiasis, are still detected in all provinces of Indonesia, despite a decline attributed to mass deworming programs. However, field surveys in several areas demonstrate that children with poor personal hygiene remain at high risk of infection (Prabowo, 2023).

According to the 2021 Central Kalimantan Provincial Health Profile, helminth infections are still reported, with a prevalence of approximately 0.9% among the examined population (Elfatia, et al., 2023). Although this figure is relatively low, a local study by Nurhalina (2018) in Murung Raya Regency revealed that helminth infections among primary school children persist, with variations across regions. Inadequate personal hygiene, poor environmental sanitation, and suboptimal hygienic behaviors among children play a significant role in sustaining the transmission of *Enterobius vermicularis*. Palangka Raya City, as the provincial capital, faces similar risks, particularly in schools with limited supervision of personal hygiene. Data on the prevalence of enterobiasis in Central Kalimantan, particularly in Palangka Raya City, remain very limited. Most existing studies have focused on rural areas or other regencies and have not included urban primary schools. Therefore, this study is important to provide data on the presence of *E. vermicularis* eggs using the anal swab method among students of SDN 12 Langkai, Palangka Raya City, in 2025.

## 2. RESEARCH METHOD

This study employed a descriptive approach. The descriptive method was used to systematically, factually, and accurately describe the characteristics of the object under investigation based on the collected data (Nugraha, 2025). Microscopic examination was performed using staining with a 5% eosin solution, followed by observation under a light microscope at 10× and 40× objective magnifications.

This study was conducted in May 2025. Sample collection was carried out at State Elementary School 12 Langkai, Langkai Subdistrict, Pahandut District, Palangka Raya City,



while laboratory examinations were performed at the Biomedical Laboratory, Muhammadiyah University of Palangka Raya.

The study population consisted of students from classes I A, I B, II A, and II B at State Elementary School 12 Langkai, Langkai Subdistrict, Pahandut District, Palangka Raya City, with a total of 15 students. Samples were selected using a purposive sampling technique, a non-probability sampling method in which the researcher establishes specific criteria considered relevant to the study objectives. This purposive selection was expected to yield representative data appropriate to the research problem.

During the pre-analytical phase, parents were provided with education regarding the objectives, procedures, and specimen collection method using the anal swab technique. Subsequently, the sampling tools (anal swabs) were distributed to parents for use according to the instructions provided. This educational step aimed to ensure proper specimen collection and accurate results.

The analytical phase was conducted using cotton swabs resembling ear-cleaning applicators. The respondent's buttocks were gently separated, and the swab was pressed and gently rubbed around the perianal area without insertion into the anal canal. The swab was then immersed in a test tube containing approximately 0.5 mL (about 10 drops) of physiological saline (NaCl) solution and agitated to release any adherent eggs into the solution. The resulting suspension was aspirated using a dropper pipette, placed onto a glass slide, covered with a coverslip, and examined under a light microscope at 10× and 40× objective magnifications to identify the presence of *Enterobius vermicularis* eggs (Ompusunggu, 2014).

The post-analytical phase involved interpretation of the microscopic findings. Examination results were considered negative if no helminth eggs or larvae were observed, and positive if eggs or larvae of *Enterobius vermicularis* were detected in the examined preparations.

### 3. RESULT AND DISCUSSION

The results of the examination for *Enterobius vermicularis* eggs among students of State Elementary School 12 Langkai, Langkai Subdistrict, Pahandut District, Palangka Raya City, were processed manually and presented in the form of a frequency distribution table. The obtained data were subsequently expressed as percentages to more clearly and quantitatively describe the proportion of examination results.

**Table 1. Characteristic of Responden**

Sample Characteristics	Number of Samples (n)	Percentage (%)
By Age		
7 years	10	66,7
8 years	5	33,3
Total	15	100
Gender		



Male	10	66,7
Female	5	33,3
Total	15	100

**Table 2. Result of Microscopic Examination of *Enterobius vermicularis* Eggs**

Category	Number	Percent (%)
Positive	0	0
Negative	15	100
Total	15	100

Based on the study results, none of the samples showed the presence of *Enterobius vermicularis* eggs or larvae; therefore, all examination results were classified as negative.

These findings are consistent with the questionnaire data completed by the students, in which the majority of respondents reported practicing clean and healthy lifestyle behaviors, such as wearing footwear, washing hands regularly, and trimming fingernails routinely. In addition, questionnaire data indicated that most students had no previous history of helminth infection. This finding is in line with studies conducted by Rosdania (2016) and Putri et al., (2020), which reported a significant association between personal hygiene levels and the occurrence of enterobiasis, particularly influenced by the habit of handwashing with clean water.

The results also demonstrated that none of the respondents were infected with enterobiasis-related helminths. According to the authors, these negative findings may be attributed to a good level of parental knowledge and awareness regarding the prevention of *Enterobius vermicularis* infection. This is consistent with the study by Agustianingsih et al., (2020), which emphasized that parental roles, particularly those of mothers, play an important role in shaping children's health behaviors.

#### 4. CONCLUSION

Based on the results of this study, it can be concluded that no cases of enterobiasis were detected among Grade I and Grade II students at State Elementary School 12 Langkai, Palangka Raya City.

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