



43

NEMATODES CLASSIFICATION

46.1 INTRODUCTION

Nematodes belong to the phylum Nematoda. Many species of nematodes are free living in fresh or salt water, mud or soil. They are parasites of both animals and plants. Only medically important nematodes are discussed in the following sections.



OBJECTIVES

After reading this lesson, you will be able to:

- explain the general characteristics of nematodes
- describe the classification of nematodes

General characteristics

Nematodes are elongated, cylindrical, bilaterally symmetrical, unsegmented worms with tapering ends. The name ‘nematodes’ means thread like. The body is covered with tough cuticle.

Their size varies from less than 5 mm (*Trichinella spiralis*) to 1 metre (*Dracunculus medinensis*). The male is generally smaller than female and its posterior end is curved or coiled ventrally. The sexes are separate. Female nematodes may be divided as

Oviparous (nematodes which lay eggs)

- Laying unsegmented eggs
 - *Ascaris lumbricoides*
 - *Trichuris trichura*
- Laying eggs with segmented ova



Notes

- o *Ancylostoma duodenale*
- o *Necator americanus*

Viviparous (nematodes which give birth to larvae)

- *Dracunculus medinensis*
- *Wucheria bancrofti*

Ovo- viviparous (nematodes laying eggs containing larvae that immediately hatch out)

- *Strongyloides stercoralis*

Modes of infection with nematode parasites

Ingestion of food and water contaminated with eggs (*Ascaris lumbricoides*), ingestion of cyclops (*Dracunculus medinensis*) or ingestion of infected pork (*Trichinella spiralis*). Penetration of skin for example larvae of *A. duodenale*, *N. americanus* and *S. stercoralis*. Blood sucking insects for example *Wucheria bancrofti* and *Brugia malayi*.

Classification of nematodes on the basis of habitat of adult worms:

Intestinal

Small intestine: *A. lumbricoides*, *A. duodenale*, *N. americanus*, *S. stercoralis*, *T. spiralis*.

Large intestine: *E. vermicularis*, *T. trichuria*.

Somatic

Lymphatic system: *W. bancrofti*, *B. malayi*.

Subcutaneous tissue: *Loa loa*, *Onchocerca volvulus*, *D. medinensis*.

Body cavity: *Mansonella perstans*.

Conjunctiva: *Loa loa*.



INTEXT QUESTIONS 43.1

1. Which of the following nematodes is ovoviviparous?
 - (a) *Ascaris lumbricoides*.
 - (b) *Dracunculus medinensis*.

Nematodes Classification

- (c) *Strongyloides stercoralis*.
(d) *Trichinella spiralis*.
2. Which of the following nematodes lays unsegmented eggs?
- (a) *Necator americanus*.
(b) *Trichuris trichiura*.
(c) *Strongyloides stercoralis*.
(d) *Trichinella spiralis*
3. Which of the following nematodes lays eggs containing larvae?
- (a) *Trichinella spiralis*.
(b) *Enterobius vermicularis*.
(c) *Brugia malayi*.
(d) *Ascaris lumbricoides*.
4. Adult worm of which of the following resides in human body cavity?
- (a) *Wucheria bancrofti*.
(b) *Brugia malayi*.
(c) *Ascaris lumbricoides*.
(d) *Mansonella perstans*.
5. Adult worm of which of the following resides in large intestine?
- (a) *Ascaris lumbricoides*.
(b) *Dracunculus medinensis*.
(c) *Strongyloides stercoralis*.
(d) *Enterobius vermicularis*.



WHAT YOU HAVE LEARNT

- Nematodes are elongated, cylindrical, bilaterally symmetrical, unsegmented worms with tapering ends. Sexes are separate into male and female. Female nematodes may be divided as oviparous, ovi viviparous and viviparous. Nematodes have different modes of infection like, by ingestion of food and water contaminated by eggs of nematodes, ingestion of and infected pork, penetration of skin and bite of blood sucking insects. Nematodes can be classified on the basis of habitat of adult worms.

MODULE

Microbiology



Notes

MODULE

Microbiology

Nematodes Classification



TERMINAL QUESTION

1. Classify nematodes?



ANSWERS OF INTEXT QUESTIONS

43.1

1. (c)
2. (b)
3. (b)
4. (d)
5. (d)



Notes