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سورة البقرة آية 32



# **EPIDEMIOLOGICAL STUDIES ON SOME FISH-BORNE PARASITES**

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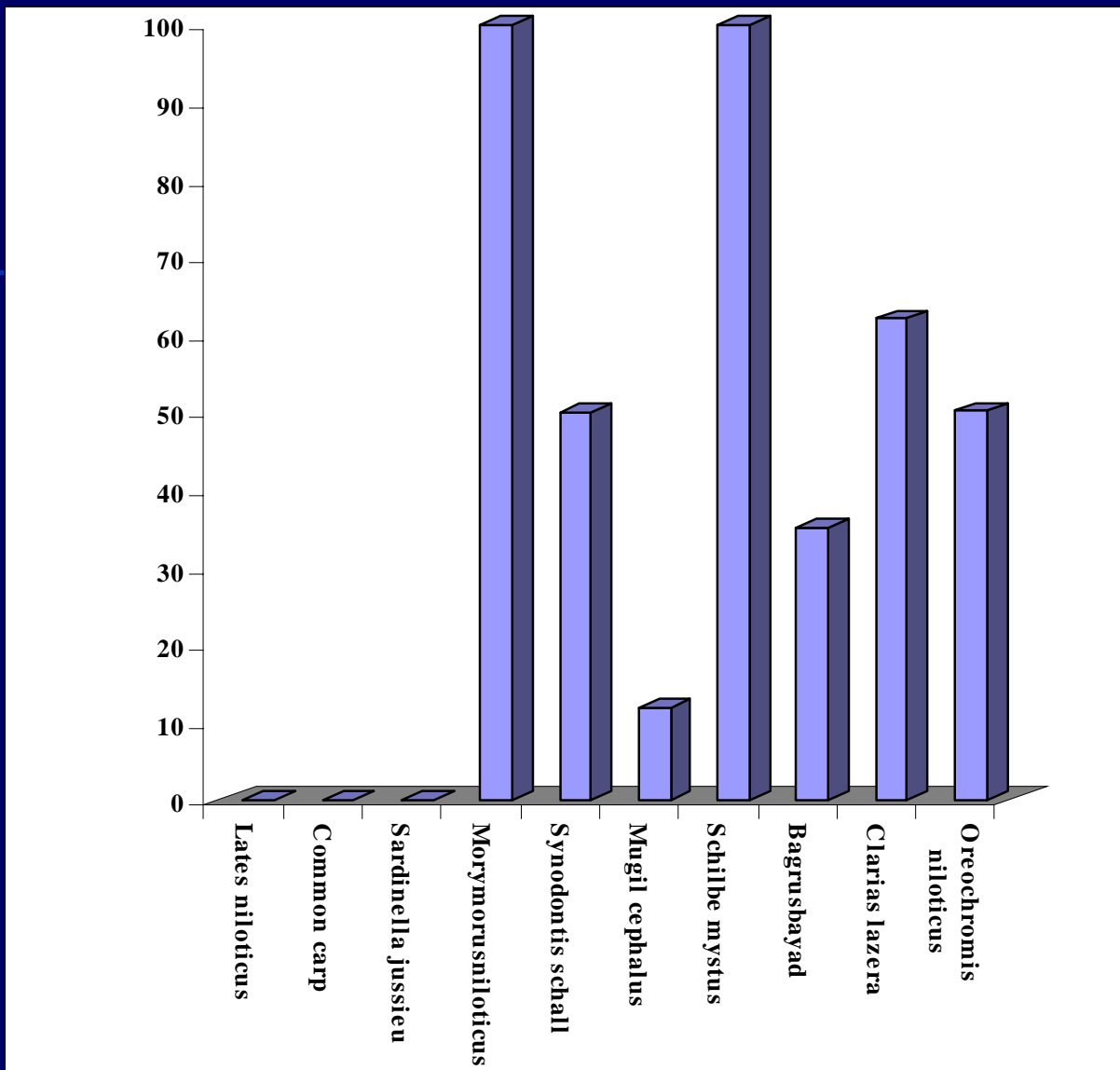
# Introduction

- 1. Fish is considered as a source of protein.**
- 2. Fish production is greatly affected with parasitic infection.**
- 3. Fish may act as a source of parasitic zoonoses.**
- 4. This study was focusing on metacercarial infection of fish.**

# Aim of the work

- ✦ 1-Study the incidence of different metacercariae and cysts in ten fish species.
- ✦ 2-Identification of these metacercariae and cysts by excystation and animal inoculation.
- ✦ 3-Collection of adult worms recovered from experimentally infected laboratory animals (rats and mice).
- ✦ 4-Mounting and identification of the recovered worms.

By examination of the muscles of a total no. 669 from which 255 *Oreochromis niloticus*, 129 *Clarias lazera*, 91 *Bagrus bayad*, 15 *Schilbe mystus*, 67 *Mugil cephalus*, 26 *Synodontis schall*, 15 *Mormyrus niloticus*, 24 *Common carp*, 40 *Sardinella jussieu* and 7 *lates niloticus* And the results revealed that :-



**Prevalence of infection with encysted metacercariae  
in different fish species**



Concerning the percentage of infection and no. of encysted metacercariae P.G.M. the results Showed that:

Fish species	Total No. exam.	No .+ve	% of infection	Mean intensity/gm
<i>Oreochromis niloticus</i>	255	128	50.19	1.854
<i>Clarias lazera</i>	129	80	62.015	6.08
<i>Bagrus bayad</i>	91	32	35.16	1.30
<i>Schilbe mystus</i>	15	15	100	1.59
<i>Mugil sp.</i>	67	8	11.94	2.22
<i>Synodontis schall</i>	26	13	50	1.13
<i>Morymoorus niloticus</i>	15	15	100	1.855





## Prevalence and intensity of infection with encysted metacercaria in Oreochromis niloticus (Cont.)

Month	Prevalence (%)		Intensity		Mean Intensity		Number of Fish		Number of Metacercariae		Number of Fish		Mean Intensity	
	Prevalence	Number of Fish	Mean Intensity	Number of Fish	Mean Intensity	Number of Fish	Mean Intensity	Number of Fish	Mean Intensity	Number of Fish	Mean Intensity	Number of Fish	Mean Intensity	Number of Fish
Jan.	8	6	75	5 (83.3)	1.165	5 (83.3)	2.165	1 (16.66)	1	4 (66.6)	1.625	5 (83.3)	1.83	
Feb.	8	8	100	6 (75)	1.125	5 (62.5)	2	1 (12.5)	1	7 (87.5)	1.165	6 (75)	1.2	
Mar ch	39	35	89.7	26 (74.2)	2.39	30 (85.71)	1.95	10 (28.57)	1.6	32 (91.42)	3.06	33 (94.28)	3.35	
Apri l	68	40	58.8	21 (52.5)	1.575	27 (67.5)	1.335	-	-	29 (72.5)	1.41	27 (67.5)	1.255	
May	50	29	58	19 (65.5)	1.55	25 (86.2)	1.975	10 (34.48)	1	20 (68.96)	2.585	19 (65.5)	1.1	
June	9	7	77.7	4 (57.14)	1.25	2 (28.57)	1	-	-	1 (14.28)	1	1 (14.28)	1	
July	14	1	7.14	1 (100)	1	-	-	-	-	-	-	-	-	
Sep.	2	2	100	2 (100)	1	2 (100)	2.5	-	-	2 (100)	2	2 (100)	3.5	

# Prevalence and intensity of infection with encysted metacercaria in *Clarias lazera*

Infection in each body region of the body													
Month	Total no. exam.	No. +ve	% of infection	Head region		Dorsum region		Trunk region		Tail region		Anal region	
				No.+ve(%)	Mean E.M.C./gm	No.+ve(%)	Mean E.M.C./gm	No.+ve(%)	Mean E.M.C./gm	No.+ve(%)	Mean E.M.C./gm		
Feb.	13	13	100	-	-	13(100)	8.61	13(100)	5.61	13(100)	6.38	13(100)	4.38
Mar.	15	7	46.66	-	-	7(100)	6.82	6(85.71)	8	7(100)	7.14	6(85.71)	6.66
Apr	13	7	53.8	-	-	7(100)	7.57	7(100)	5.85	7(100)	6.57	7(100)	6.28
July	3	-	-	-	-	-	-	-	-	-	-	-	-
Octo.	4	4	100	-	-	4(100)	12.5	4(100)	6	4(100)	8.5	4(100)	9.5
Jan.	13	10	76.92	1(10)	7	10(100)	8.71	9(90)	5.91	9(90)	8.165	9(90)	7.75
Mar.	23	12	52.17	-	-	12(100)	2.125	8(66.6)	2	11(91.66)	2.375	8(66.6)	2.875
Apr	12	6	50	-	-	6(100)	2.125	3(50)	1.83	3(50)	2.66	3(50)	3
May	11	5	45.45	-	-	5(100)	4.25	5(100)	3.75	5(100)	7.875	5(100)	7.08
July	6	1	16.66	-	-	1(100)	1	-	-	1(100)	2	-	-
Aug.	13	12	92.3	12(100)	3.83	11(91.66)	5.14	11(91.66)	5.35	11(91.66)	7.375	11(91.66)	5.915
Nov.	3	3	100	-	-	3(100)	11.66	3(100)	7.33	3(100)	17	3(100)	16.33

# Prevalence and intensity of infection with encysted metacercaria in *Bagrus bayad* and *Schilbe mystus*

Infection in each body region of the body															
Fish spp.	Month	Total no.exam.	No. +ve	%of infection	Head region		Dorsum region		Trunk region		Tail region		Anal region		
					No.+ve(%)	Mean E.M.C./gm	No.+ve(%)	Mean E.M.C./gm	No.+ve(%)	Mean E.M.C./gm	No.+ve(%)	Mean E.M.C./gm	No.+ve(%)	Mean E.M.C./gm	
<i>B. bayad</i>	May	25	-	-	-	-	-	-	-	-	-	-	-	-	-
	Jun	15	13	86.66	10(76.92)	1.3	13(100)	1.53	-	-	6(46.15)	1	7(53.8)	1.428	
	Jan	28	15	53.57	6(40)	1	12(80)	1.1	1(6.66)	1	10(66.66)	1.75	4(26.66)	1.75	
	Mar	9	-	-	-	-	-	-	-	-	-	-	-	-	-
	Jun	12	2	16.66	-	-	2(100)	1	-	-	-	-	-	-	-
<i>S. mystus</i>	Dec.	2	2	100	2(100)	4.5	-	-	-	-	-	-	-	2(100)	1.5
	Sept.	12	12	100	11(91.6)	1.8	10(83.3)	1.2	12(100)	1	11(91.6)	1.36	7(58.33)	1.428	
	Jan.	3	3	100	3(100)	1.66	3(100)	3	3(100)	2.6	3(100)	2	1(33.3)	5	

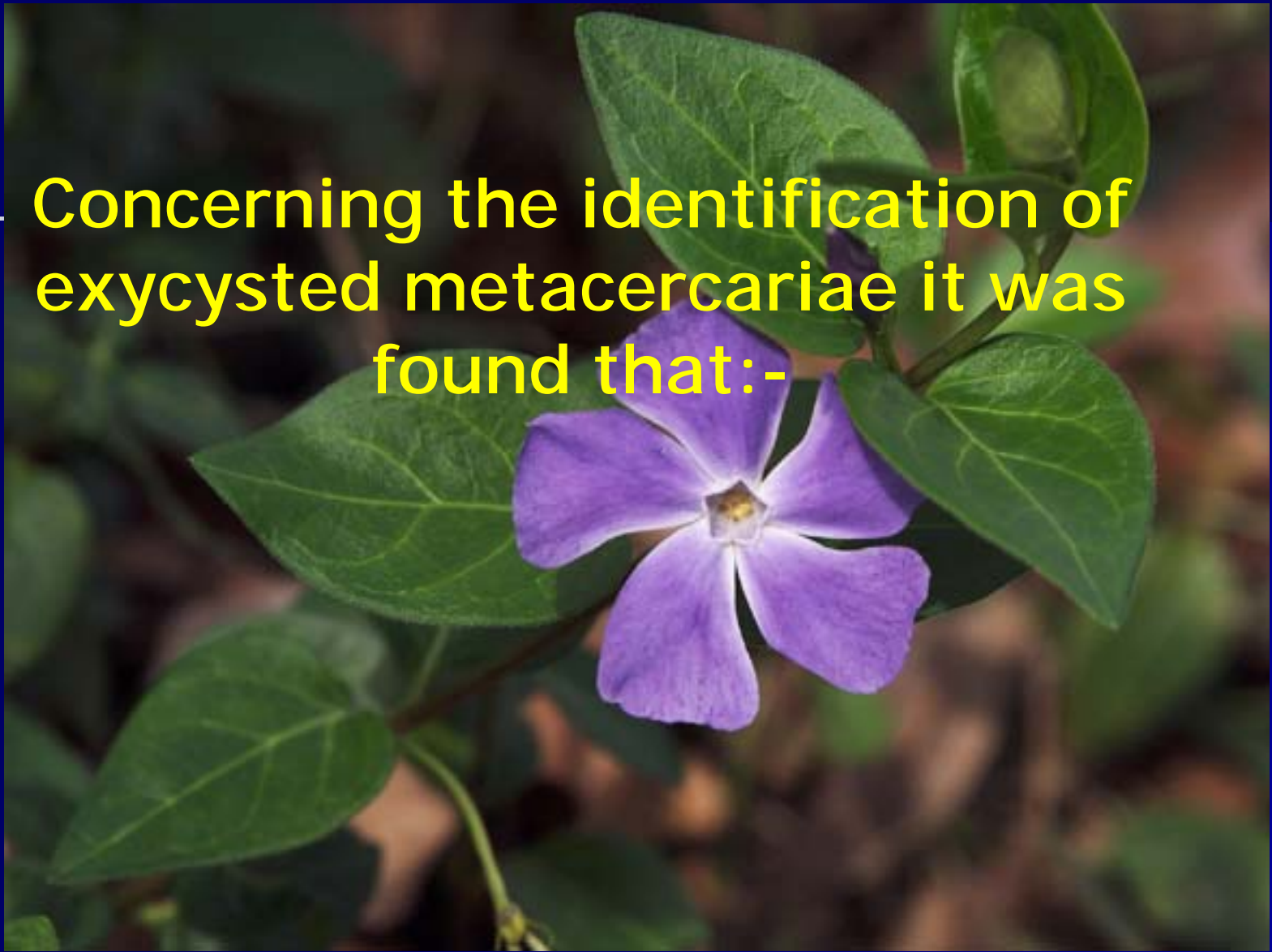
# Prevalence and intensity of infection with encysted metacercaria in *Mugil cephalus*, *Synodontis schall* and *Morymorus niloticus*

## Infection in each body region of the body

Fish spp.	Month	Total no. exam.	No. +ve	%of infection	Head region		Dorsum region		Trunk region		Tail region		Anal region	
					No.+ve(%)	Mean E.M. C./gm	No.+ve(%)	Mean E.M. C./gm	No.+ve(%)	Mean E.M. C./gm	No.+ve(%)	Mean E.M. C./gm	No.+ve(%)	Mean E.M. C./gm
<i>M.cephalus</i>	Feb.	14	-	-	-	-	-	-	-	-	-	-	-	-
	June	15	-	-	-	-	-	-	-	-	-	-	-	-
	Sept.	24	-	-	-	-	-	-	-	-	-	-	-	-
	June	14	8	57.14	5(62.5)	2.2	8(100)	2.25	4(50)	2.25	5(62.5)	1.4	1(12.5)	3
<i>S.sc hall</i>	Jan.	24	11	45.8	-	-	5(45.45)	1	-	-	8(72.7)	1.128	3(27)	1
	June	2	2	100	-	-	2(100)	1	-	-	1(50)	2	2(100)	1.5
<i>M.ni loticus</i>	June	10	10	100	8(80)	1.4	10(100)	3	-	-	8(80)	1.75	8(80)	1.8
	Jan.	3	3	100	2(66.6)	2	3(100)	2	-	-	2(66.6)	1.5	3(100)	2
	Dec.	2	2	100	1(50)	2	2(100)	1	-	-	1(50)	1	2(100)	2

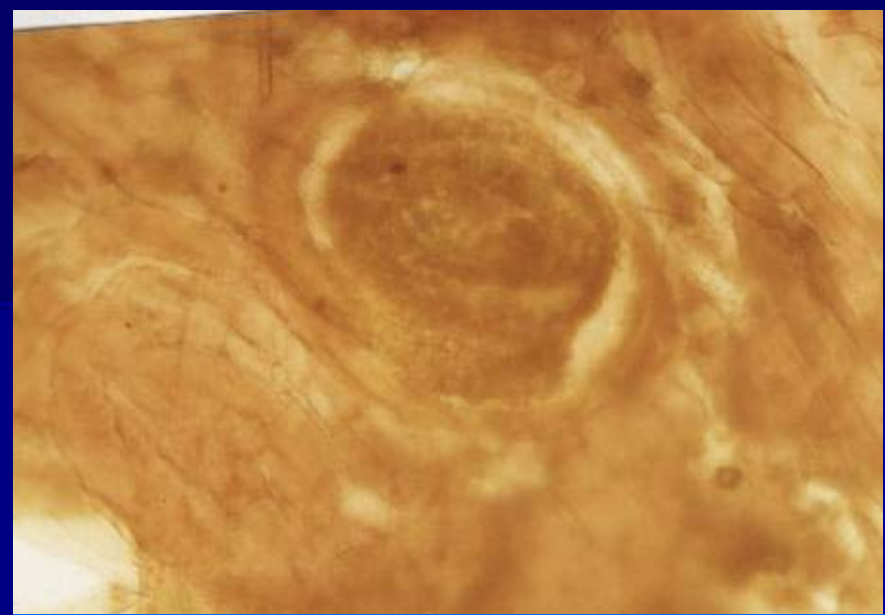
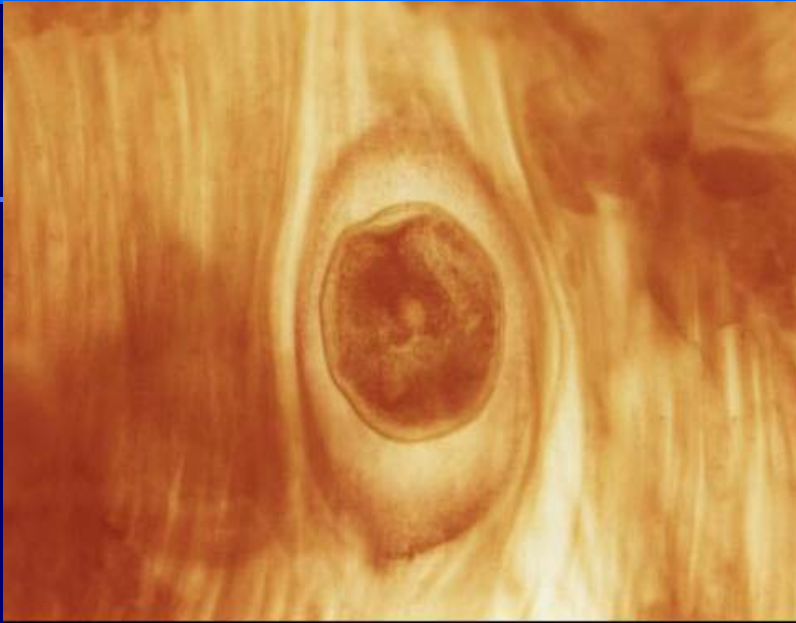


Concerning the identification of exycysted metacercariae it was found that:-



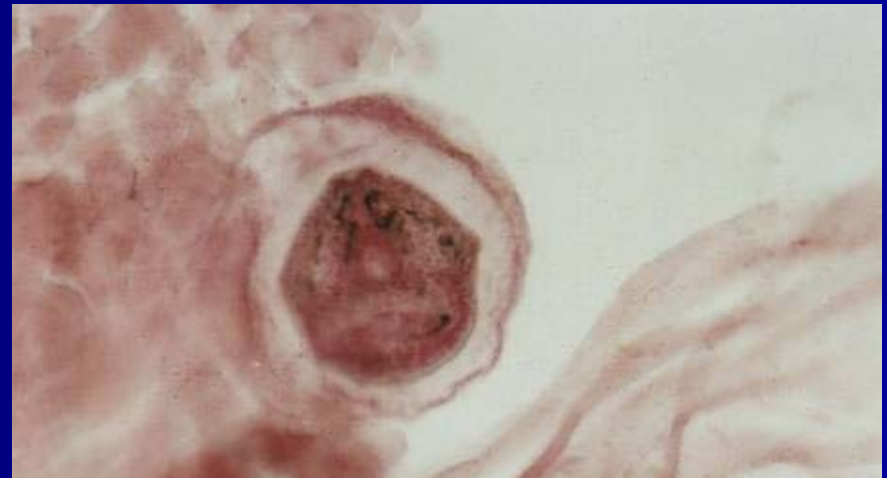


*Mesostephanus* encysted metacercaria  
(X 100) (Carmin stain)

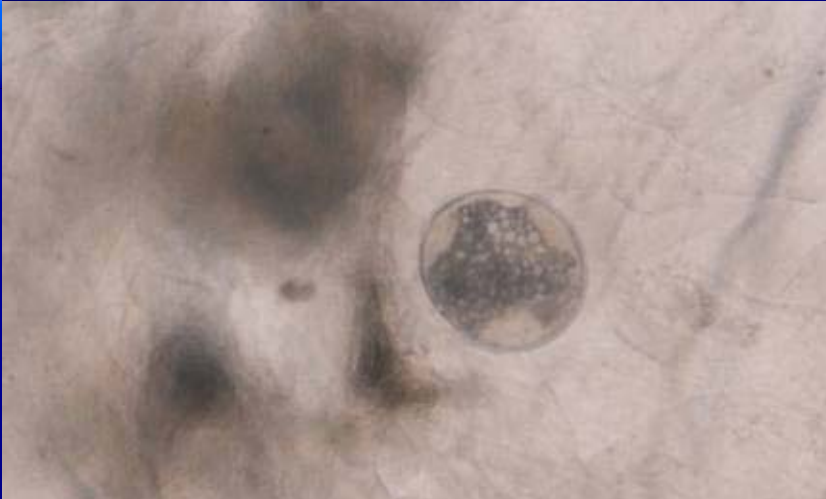


*Hetrophyes* Encysted metacercaria (X 100)  
(Carmin stain)

*Cyanodiplostomum* encysted metacercaria  
(X 40) (Carmin stain)



*Prohemistomatid* encysted metacercaria (X  
100)  
(Carmin stain)



*Haplorchid* encysted metacercaria  
(X 100)  
(Fresh specimen)



Unidentified cyst (X40)  
(Fresh specimen)

The infected fish sp. (*Oreochromis niloticus* & *Clarias lazera*) were fed to the experimental animals (rats and mice) and the adult worms obtained were:

\* From *Oreochromis niloticus*

The obtained worms were

*Heterophyes heterophyes*, *Heterophyes aequalis*,  
*Centrocestus* sp., *Haplorchis pumilio*, *Metagonimus*  
*yokogawai*



Adult *Centrocestus* sp.  
(X 100)  
(Carmine stain)



Adult *Haplorchis pumilio*  
(X 100)  
(Carmine stain)



Adult *Heterophyes aequalis*  
(X 100)  
(Carmine stain)



Adult *Metagonimus yokogawai* (X  
100)  
(Carmine stain)





Adult *Hetrophyes heterophyes* (X 100)  
(Carmine stain)

- From *Clarias lazera*

The obtained worms were  
*Prohemistomum vivax*, *Mesostephanus*  
*appendiculatus*, and *Mesostephanus*  
*burmanicus*.



Adult *Mesostephanus buramnicus*  
(X 100) (Carmines stain)



Adult *Prohemistomum vivax*  
(X 100) (Carmines stain)



Adult *Mesostephanus appendiculatus*  
(X 100) (Carmine stain)

**Thank**

**You**

