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ASSESSMENT OF FISH BORNE TREMATODE INFECTION IN HUMAN AND FRESH WATER FISHES IN THE COMMUNITY OF NAM DINH PROVINCE AND IDENTIFICATION OF THE CAUSATIVE AGENTS BY MORPHOLOGY AND MOLECULAR METHODS

Nguyen Van De MD., PhD. at al

Hanoi medical university-VIETNAM

INTRODUCTION

- Fish borne Trematode in Families of Opisthorchidae (*Clonorchis, Opisthorchis)* and Heterophyidae/Echinostomatidae, which are widely distributed in Vietnam
- The habit of eating raw fish is very common with a long history (the rate of eating raw fish was 75-80% in some endemic areas)
- This habit is closely related to the infection of small liver fluke and small intestinal flukes

The habit of eating raw-fish in the North of Vietnam

Cutting fish (koi pla)

The habit of eating raw-fish in the South of Vietnam

OBJECTIVES

- To determine the prevalence of fish borne trematodes in human and common fresh water fishes in Rang Dong commune, an endemic area of Nam Dinh province.
- Identification of fish borne trematode species in this study.

METHODOLOGY

- Cross-sectional survey conducted in the community by stool examination to find fish borne trematodes eggs
- Identification for species of adult worms collected from patients by morphology and confirmed by molecular method

RESULTS

1. Fishborne trematode infection in human

Examined number	Positive number/%	*Clonorchis* positive number/%	Heterophyidae positive number/%	Mix-infection/ %
405	92	79	91	78
	22.72	19.51	22.47	19.26

The intensity of Fishborne trematode infection

Clonorchis sinensis		Heterophyidae	
Positive number	Number of eggs/gam stool (EPG)	Positive number	Number of eggs/gam stool (EPG)
79	179.65	91	156.66

The result of adult worms collected from patients

Patients	*C. sinensis*	*H. taichui*	*H. pumilio*	*C. formosanus*	*F. buski*	Total
1	16	5	6	1	0	28
2	14	3	8	0	0	25
3	2	5	7	0	0	14
4	4	1	6	0	0	11
5	1	16	32	0	0	49
6	2	2	4	0	0	8
7	2	48	85	1	1	137
8	0	12	4	0	0	16
9	14	12	24	0	0	50
10	1	20	24	2	0	47
Total	56	124	200	4	1	385

Fishborne trematode infection in fish

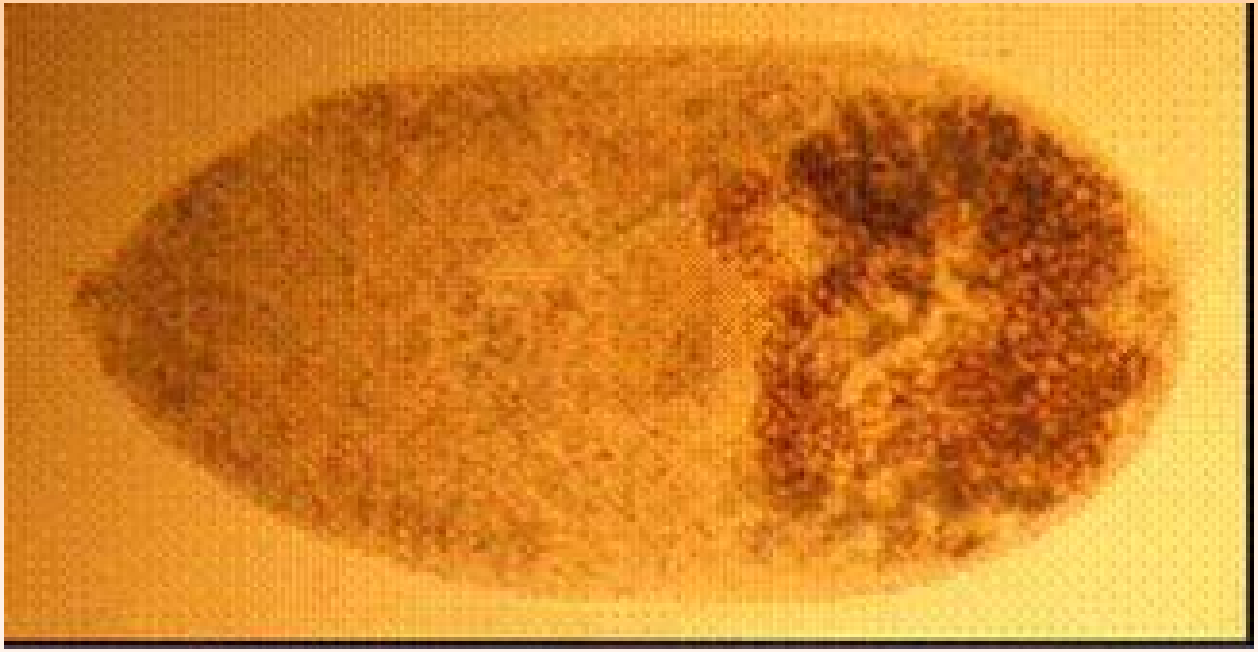
Species of fish for examination	Examined number	No. positive Metacercaria	% positive Metacercaria
Silver carp	50	6	12
Common carp	50	10	20
Grass carp	50	8	16
Carassius	50	7	14
Tilapia	50	5	10
Sub total	250	36	14.4

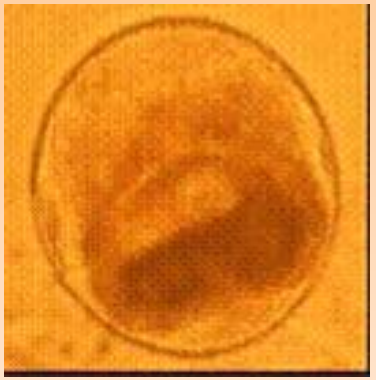
The species of fishborne trematode metacercaria in fish

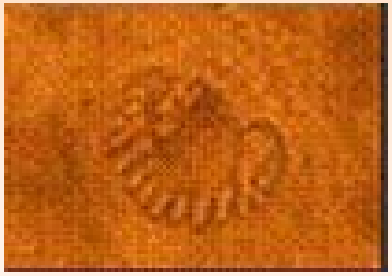
Metacercaria / Species of fish	*C. sinensis*	*H. taichui*	*H. pumilio*	*C. formosanus*	Total
Silver carp	1	2	3	0	6
Common carp	1	4	4	1	10
Grass carp	0	2	6	0	8
Carassius	0	3	4	0	7
Tilapia	0	1	3	1	5
Total	2	12	20	2	36

Clonorchis sinensis collected from patient and its larvae in fish

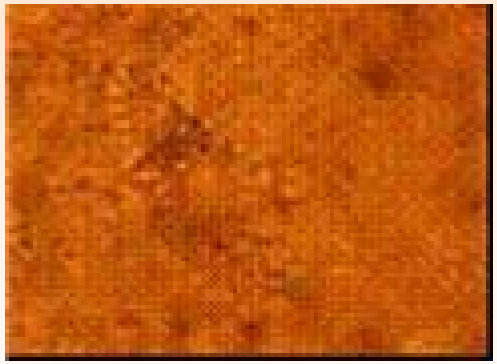
Haplorchis taichui in human and its larvae in fish







Haplorchis pumilio in human and its larvae in fish



Centrocestus formosanus in human and its larvae in fish

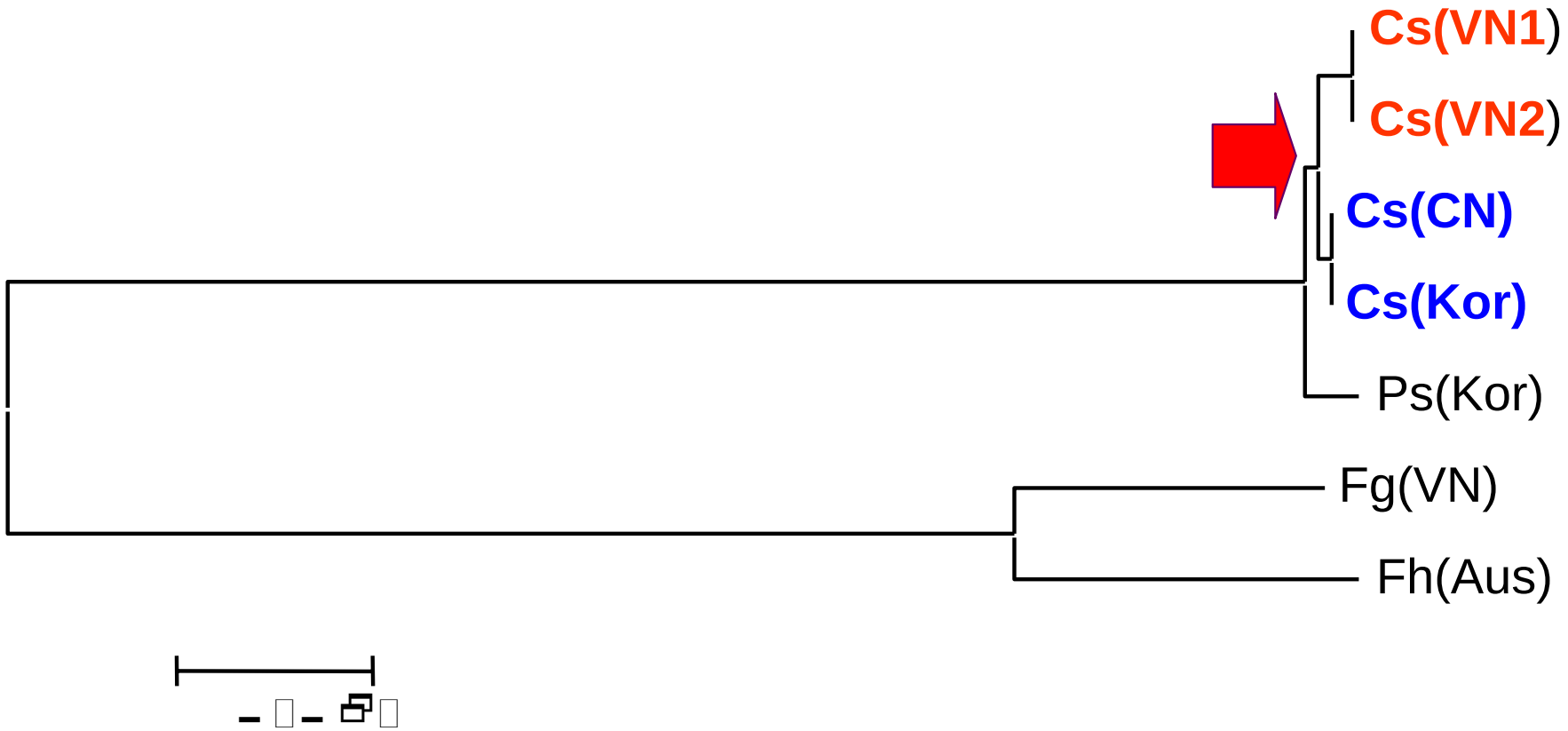
Confirmation species by molecular method

- A region of 446 nucleotide and 147 amono acid of *cox1* for *Clonorchis sinensis* Vietnam were compared with that of *C. sinensis* sequences originated from China and Korea.
- The analysis revealed that nucleotide sequence of *C. sinensis* Vietnam were similarly with *C. sinensis* from China and Korea (99.6% for nucleotide and 100% for amino acid).

Confirmation species by molecular method

- A portion *ITS-2 (internal transcribed spacer 2)* and *18S ribosome* of *Haplorchis pumilio* and *Haplorchis taichui* Vietnam were sequenced and compared with *H. pumilio* and *H. taichui* Thailand (Jitra Waikagul, Mahidol University) were similar nucleotide 99-100% and 98-99% respectively.

Cytochrome oxidase subunit 1(*cox1*)



Collection fish from the fish pond

Thank you for your attention !