



## A NEW *HAMMERSCHMIDTIELLA* SP. FROM AN INSECT PEST

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### Abstract

*The present paper describes a nematode belonging to the Genus Hammerschmidtella recovered from the hindgut /posterior part of gut of a cockroach (Periplaneta americana ) and is proposed as a new species giving the name as Hammerschmidtella canchipurensis.*

*Keywords- Parasitic Nematode , new species , Cockroach , Manipur.*

### I. INTRODUCTION

In an investigation, many cockroaches were collected from Canchipur, Imphal east Manipur. The collected specimens were dissected and found to be infected with some nematodes. On further detail study the nematodes were found to be under the genus *Hammerschmidtella* Chitwood 1932, however many morphological differences were found that differ from the already published known specimens and it can't be accommodated along with any of them, hence this specimen is described as a new species by giving the name *Hammerschmidtella canchipurensis* n.sp.

### II. MATERIAL AND METHODS

The specimen recovered from the intestine of the insect-cockroach were washed in 0.7% normal saline, then fixed in F.A (Formalin Alcohol) for few minutes. Then they were transferred to G.A (Glycerin Alcohol) in cavity block which are ultimately transferred to desiccator for complete dehydration. After about two weeks the dehydrated specimen were prepared into permanent slides by mounting with already dehydrated pure glycerin and covered with cover slip, was sealed and the nematode was studied under the microscope. All the measurement are given in mm, if otherwise not mentioned.

### III. DESCRIPTION

Female (3): Body is cylindrical elongated and tapering at both ends, measures 3.17-3.40 in length and 0.29-0.35 in width. The annules are distinct except the oesophageal region. The mouth is simple without any flap, oesophagus is cylindrical and tubular structure which is not uniform throughout the length. It has corpus, psuedobulb, isthmus and oesophageal bulb. Corpus is 0.20-0.30 in length. Psuedobulb is an enlarged part of corpus, lies anterior to oesophageal bulb which measures 0.08-0.12 in length and 0.06-0.08 in width. Isthmus is tubular, elongated and connects psuedobulb and oesophageal bulb, measures 0.02-0.05 in length and 0.015-0.03 in width. Esophageal bulb is rounded, thick and muscular, measures 0.07-0.09 in length and 0.08-0.10 in width. Nerve ring at 0.10-0.12 from anterior end lies just above the psuedobulb region. Intestine is swollen at the beginning and enclosed a prominent cardia at oesophago-intestinal junction with a clear middle canal, which functions to control the passage of food materials. The intestine runs straight up to anus, which lies at 2.30-2.52 from the anterior end. Excretory pore is not distinctly visible. Vulval opening lies at 0.82-0.90 from anterior end. Female reproductive system includes a moderately distinct, elongated vagina measuring 0.11-0.15 being directed

forward, bifurcating into a short upper or anterior uterine sac that measures 0.13-0.16 in length and 0.03-0.05 in width and a posterior very much elongated oviduct containing numerous eggs. The uterus is flexed or coiled at intervals, extending from upper portion of the tail region to the region of vulval opening, which is situated at the anterior 1/4 of the body. Eggs are elongated, oval shaped and contains a group of already divided cells. The eggs measures 0.06-0.08 in length and 0.02-0.04 in width. Cuticle is clear and smooth, bears prominent annules at the anterior end of the body and faint towards the posterior end of the body. The tail is elongated and pointed like a needle with a length of 0.88-1.00.

Male: Not found.

#### IV. DIFFERENTIAL DIAGNOSIS

The Genus *Hammerschmidtella* was established by Chitwood (1932). The present worm was discovered from the intestine of *Periplaneta americana*. This genus was established mainly on the basis of some characteristic such as oesophagus which bears two bulbs, psuedobulb and valbular or oesophageal bulb. The present species have a close resemblance to *Hammerschmidtella basiri* Singh and Kaur, 1988 but differ in many characters when studied in detail. Body is tapering at both ends, cuticle is very thick and more annulated at the tips of the body. The body is long 3.17-3.40 in length and 0.29-0.35 in width (2700-2900µm length and 290-300µm width in *H. basiri*). There is no submedian labio papillae in present specimen (there are 8 sub-median labio papillae in *H. basiri*). Cardia is distinct. The oesophagus in the present specimens 0.29-0.44 long (260-320µm *H. basiri*). Tail is 0.88-1.00 long (728-765µm in *H. basiri*). Egg is 0.06-0.08 length and 0.02-0.04 width (egg slightly oval 90-100µm length and 40-47µm width in *H. basiri*). The oval shaped eggs contain well developed gonadial cells in an advanced stage of division. Nerve ring located at 0.10-0.12 from anterior end in the present specimen (101.4-120.9µm from anterior end in case of *H. basiri*). Ovary is bifurcated and having uterine sac at the upper part of uterus which is flexed or coiled extending up to upper portion of tail region in the present specimen which is not seen in *H. basiri*.

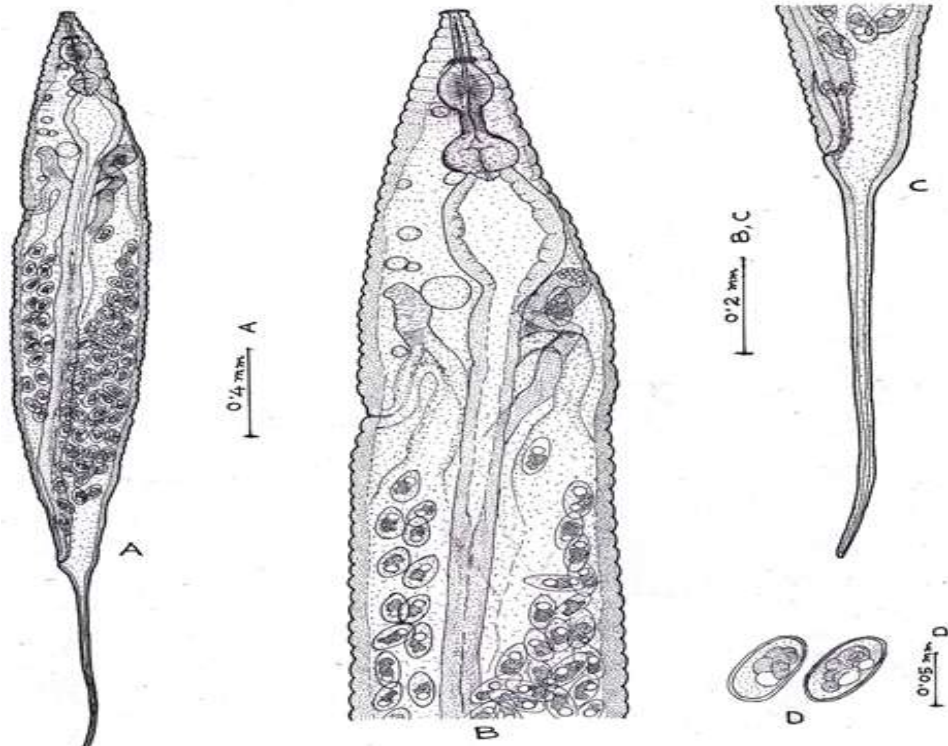
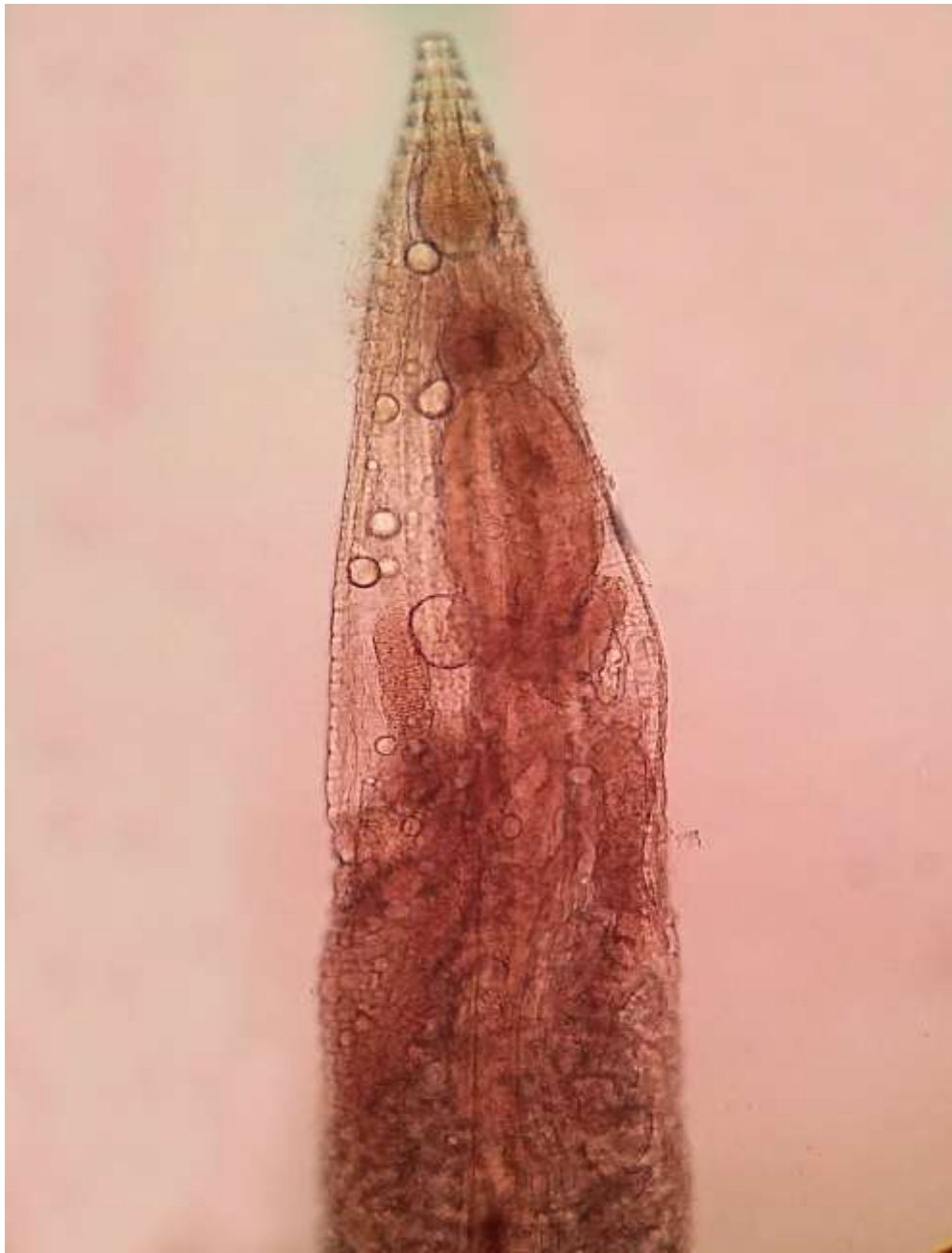


Figure 1 (A-D): *Hammerschmidtella canchipurensis* n. sp., A – Whole body (female), B-Anterior end (enlarged), C-posterior end (enlarged) and D-Eggs.



**Figure 2: *Hammerschmidtella canchipurensis* n.sp, (Anterior portion enlarged view).**

By considering these different characters as well as the variations from other related species, the present specimen cannot be accommodated under any known species hence proposed to accommodate as a new species with giving the name as *Hammerschmidtella canchipurensis*.

**TAXONOMIC SUMMARY**

Type host	<i>Periplaneta americana</i> .
Type habitat	Rectum.
Locality of the host	Canchipur, Imphal east, Manipur, ( Lat.-24° 75' and Long.- 93° 93').
Type specimen	C4N2 (holotype), C4N1 and C4N3.

#### **IV. ACKNOWLEDGEMENT**

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