

Short Communication

**NEW RECORD OF *Synhimantus (Dispharynx) nasuta*  
(RUDOLPHI, 1819) CHABAUD, 1975 (NEMATODA,  
ACUARIOIDEA) IN THE YELLOW VENTED BULBUL (*Pycnonotus  
goivier*) FROM EAST KALIMANTAN, INDONESIA**

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The occurrence of *S. (D) nasuta* is recorded for the first time in Indonesia from the Yellow-vented Bulbul, (Pycnonotidae) *Pycnonotus goivier*. *S. (D) nasuta* occurs in many avian families (Baylis 1939; Yamaguti 1961; Soulsby 1982; Foster *et al.* 2002; Rodrigues *et al.* 2003; Zhang *et al.* 2004). Thus, the occurrence of this parasite on the family Pycnonotidae is a new host record.

Zhang *et al.* (2004) treated *Dispharynx* as a subgenus of *Synhimantus* Railliet, Henry and Sisoff, 1912. They stated that when Railliet *et al.* (1912) revised the genus *Acuaria* Bremser, 1811, he erected the sub-genus *Dispharynx*, with *A. (D.) nasuta* as the type species. Skrjabin *et al.* (1965) raised *Dispharynx* to generic rank. Chabaud (1975) considered *Dispharynx* a subgenus of *Synhimantus*. Mawson (1982) accepted Chabaud's subgeneric designation, but on the other hand, Gogoi and Sarmah (1988) considered *Dispharynx* a distinct genus. In this paper we treated *Dispharynx* as a subgenus of *Synhimantus*.

The bird was collected from East Kalimantan, Indonesia (PT. INHUTANI, Sei Merdeka Unit, Km 29, 1°02'S, 116°20'E) in November, 2005. The nematodes were removed from the oesophageal lining, comprising 127 females and 133 males.

Examination was carried out by two methods; using light microscope and scanning electron microscope (SEM). For light microscopy study, the specimens were cleared in lactophenol. Drawings were made with a camera

lucida attached to an Olympus BH microscope. In the case of SEM study, specimens were examined with a JSM. 5310LV microscope. The specimens were fixed in glutaraldehyde, dehydrated with ethanol and freeze dried. The dried specimens were then coated with gold before examining. All of measurements were presented in micrometers being the range of the mean of the standard deviation, when more than two specimens were measured.

The present description is to supplement existing studies previous, published by other research workers. The descriptions were based on 17 males and 10 females, selected randomly from the entire collection.

**General.** Small nematodes, body relatively stout and usually curled ventrally towards the posterior end with fine transverse annulations striations. Anterior region of males and females presents similar morphological features although males are relatively smaller than females. Lips small, conical. One pair of pseudolabia present. Oral aperture oval-elongate, near which originates two pairs of cephalic cordons. Cordons undulating, transversely striated, recurrent, thick, not anastomosing, formed from modified cuticle, with thin transverse striations. Excretory pore situated anterior to posterior limit of cordons. Cervical papillae between recurrent cordons, simple, bicuspid. Oesophagus simple, claviform, lining not ornamented, consisting of two parts, short anterior muscular and long posterior glandular region. Muscular oesophagus 9.97-14.69% of total body length (TBL), glandular esophagus 26.67-39.52% of TBL. Pharynx 2.22-2.67% of TBL.

**Male.** Body 3010 - 4240  $\mu\text{m}$  long, 170-260 in maximum width. Head width 22-35. Cordons extend 287-393 from anterior extremely. Pharynx 80-100 long. Oesophagus 1,270-1,770, divided into anterior muscular region 410-520 long and 60-90 long maximum width and posterior glandular region 860-1,250 long and 70-100 maximum width. Nerve ring and excretory 190-260 and 246-290 from anterior end, respectively. Cervical papillae 180-245 from anterior end. Transverse annulations 24-33 (one specimen, the annulations from the middle of the body).

Caudal end of male spirally coiled. Tail 22-31 long. Spicules unequal, dissimilar. Left spicule slender, 240-390 long. Right spicule stouter and boat shape 82 - 142 long. Ratio of right spicule - left spicule 1 : 2.75 - 2.95, gubernaculum absent. Nine pairs of pedunculate caudal papillae, four pre and five post - cloacal. Pattern of papillae: one pair, two pairs, two pairs post-cloacal and four pairs pre-cloacal, respectively. First pedunculate papilla from the posterior end was the smallest; tip of papillae rounded.

Ventral surface of the posterior end of the male with longitudinal striations extending from just anterior to cloaca for 344 (one specimen) towards anterior end of body.

**Female.** 3600 - 4630  $\mu\text{m}$  long, 200 - 360 maximum width. Head width 40 - 80. Pharynx 80 - 120. Cephalic cordons extend 299 - 430 from anterior extremity. Oesophagus 1,420 - 1,830 long, anterior muscular region 460 - 580 long and 60 - 100 in maximum width, posterior glandular region 960 - 1,250 long and 80 - 140 in maximum width. Nerve ring 220 - 290 and excretory pore 380 - 310 from the anterior end. Cervical papilla 250 - 310 from anterior end. Transverse annulations 27 - 37 apart (one specimen, annulations from the middle of the body).

Vulva situated in posterior of body 740 - 962 from posterior extremity. Vulva diameter 45.57 (one specimen). Vagina forms muscular ovejector running at first posteriorly from vulva and then bending anteriorly. Vagina vera and vagina uterine 54 and 106, respectively (one specimen). Uterine branches opposed, containing many small eggs. Didelphic. Eggs 20.8 - 21.01 (wide) by 38.94 - 39.26 (long); thick-shelled with larva when laid. Tail conical, with button-like termination, measures 120 - 130 in length.

In the past, classification of the Acuariinae depended largely on the pattern of the cordons on the surface of the anterior end of the body (Mawson 1982). Shang *et al.* (2004) reported that the cordon length and the structure of the cervical papillae were the most variable features in *S. (D) nasuta*. The shape and length and the spicules, number of caudal papillae and pharynx length were stable characters for distinguishing the species.

The morphology of *S. (D) nasuta* found in *P. goiavier* showed no differences from *S. (D) nasuta* found in other bird species. Although, slight differences in measurements were apparent among different hosts recorded by Baylis (1939), Rodrigues *et al.* (2003) & Zhang *et al.* (2004) (Table 1). These variations in measurements might be related to the host differences.

*S. (D) nasuta* has woodlice and sow bugs as its intermediate hosts (Soulsby 1982). The first-stage larvae develop to the infected third-stage larvae in 26 days after the ingestion of the eggs. When infested woodlice are eaten by birds, the worms reach maturity after 27 days. Based on faecal analysis, however, Yellow-vented bulbuls fed a lot of seeds of *Acacia mangium* and *Melastoma* sp. There were no remains of insects or other invertebrates.

Therefore, we assumed that the infection could have occurred before they switched their diet from insects to seeds.

### ACKNOWLEDGMENT

We are deeply indebted to Prof Luping Zhang, PhD and Prof. Ian Beveridge BVSc (Hons) PhD. DVSc. (The University of Melbourne) for insightful reviews of the manuscript and Ir. Endang Purwaningsih (Museum Zoologicum Bogoriense) for guiding in identification. This study was a part of collaborative research between RC Biology-LIPI and Forestry and Forest Product Research Institute (FFPRI)-Japan on Evaluation and Forecasting of the CDM Plantation Influences on Biodiversity supported by the Ministry of the Environment of Japan.

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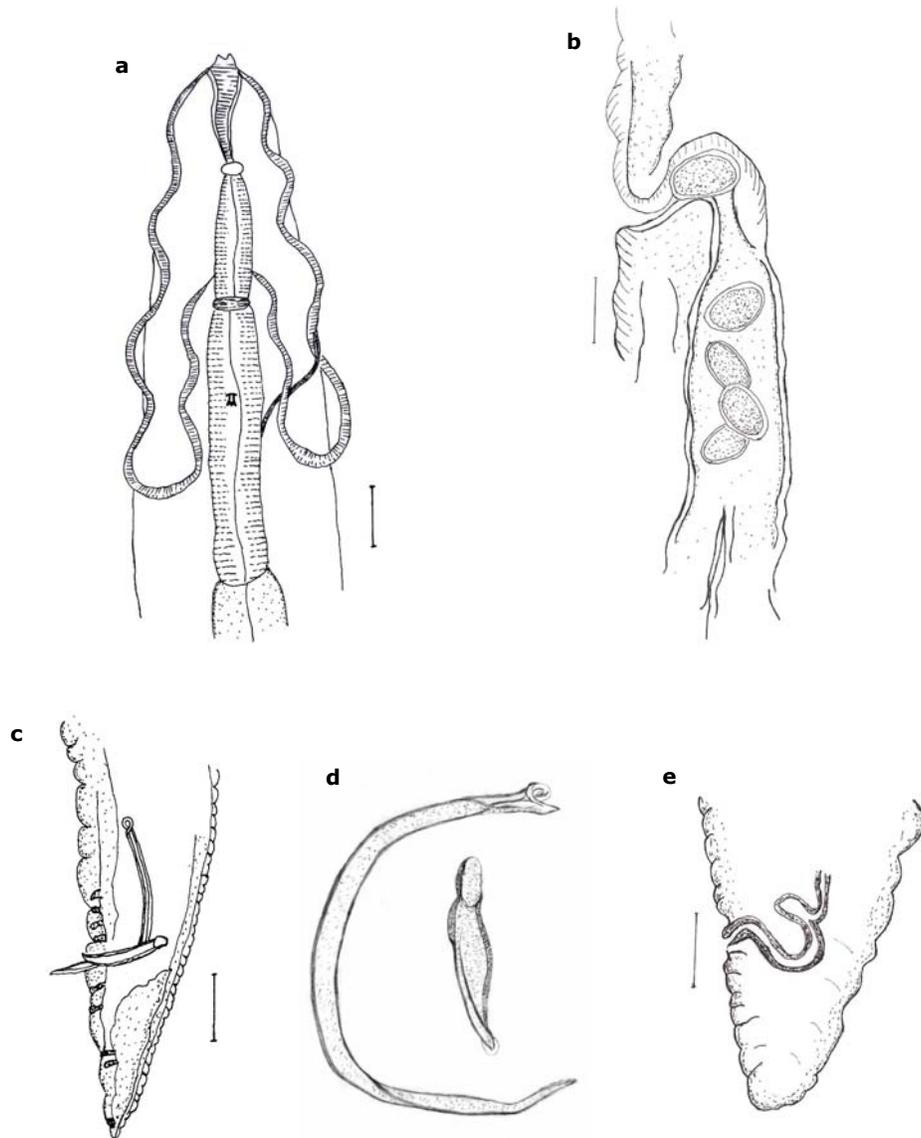
Table 1. Characteristics of *S. (D.) nasuta*.

Region	Host	Male			Female			References
		Body length ( $\mu\text{m}$ )	cordon (TBL) (%)	Spicule ratio	Body length ( $\mu\text{m}$ )	cordon (TBL %)	egg size ( $\mu\text{m}$ )	
Costa Rica	<i>Thraupis episcopus</i>	5,330-6,360	6.77-6.90	1:2.7-3.3	5,870-7,840	6.04-8.35	35-40 x 20-22	Zhang et al., 2004
	<i>Turdus grari</i>	4,220-5,990	7.41-9.28	1:2.6-2.9	4,070-5,810	9.81-12.18	33-37 x 18-20	Zhang et al., 2004
	<i>Vermivora peregrina</i>	4,990-5,920	7.13-7.55	1:2.7-2.8	4,660-5,420	11.91-12.69	37x40-21-22	Zhang et al., 2004
Calcutta	<i>Gothypis poliocephalis</i>	3,610-5,850	5.69-5.79	1:2.5	3,920-4,660	9.21-9.44	33-39 x17-20	Zhang et al., 2004
	<i>Metopidius indicus</i>	4,500-8,300	6.26-9.33	1: 2.60-2.67	5,500-10,200	9.80-9.82	33-35 x1 8-25	Baylis, 1939
Brazilia	<i>Gallus gallus</i>	3,340	-	1:2.73	6,670	-	-	Rodrigues et al., 2003
Baliqapan	<i>Pycnonotus goiavier</i>	3,010-4,240	9.27-9.53	1:2.75-2.95	3,600-4,630	8.30-9.29	20.90 x 39.01	This study

TBL: Total Body Length



**Figs 1 - 10.** *Synhimantus (Dispharynx) nasuta* 1. Cephalic region of male with cordons (bar = 165 $\mu$ m), 2 Lips with papillae (bar = 33 $\mu$ m), 3. Anterior end with two pseudolabia (bar = 16.5 $\mu$ m), 4. Posterior end of male (bar = 94.25 $\mu$ m), 5. Posterior longitudinal striations on ventral surface of posterior end of male (bar = 66 $\mu$ m), 6. Posterior papilla (bar = 9.425  $\mu$ m) 7. Spicules protruding from cloaca (bar = 16.5 $\mu$ m), 8. Tail of female with anus (bar = 16.5 $\mu$ m), 9. Vulva opening (bar = 33 $\mu$ m), 10. Bicuspid cervical papilla (bar = 4.7125  $\mu$ m)



**Figs a - e.** a. Anterior end of female, ventral view. b. vulva and uteri, ventral view. c. posterior end of male, lateral view. d. left spicule (1) and right spicule (2), e. posterior end of female, ventral view. Bars: a, c, e : 50µm, b, d: 25µm