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## TREUBIA

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Vol. 37, pp. 1 – 92, December 2010

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## **Editor's note**

It is great that *Treubia* volume 37 can be published in year 2010. Recently, it was difficult to get appropriate papers since animal taxonomy has not been an attractive subject in the field of biology. There was a lack of submitted manuscripts in 2009 that made *Treubia* could not be published in year 2009.

This volume of *TREUBIA* contains five papers of vertebrates and invertebrates. Three papers (nematode, rats and land snail) were from the results of field works in eastern part of Indonesia i.e. West Papua which was rarely explored.

Also, this year Indonesian zoologist' community lost the pioneer and expert in parasite taxonomy, Dr. Sampurno Kadarsan. His name has been used to name new species of leeches, tick, rat, lizard and frog by his successors to acknowledge his impact and contribution. He served as an editor of *Treubia* from 1992 to 1997 and was a proof reader for some years until his permanent retarded eye sight. So, his death was a great lost for all of us especially for the *Museum Zoologicum Bogoriense*.

Finally, I would like to thank all of the co-editors, referees, computing assistant, secretary and administrative assistant for their collaborative work. I acknowledge financial support from the Director of Research Centre for Biology LIPI to publish this precious journal.

Cibinong, 15 December 2010

Dewi M. Prawiradilaga  
Chief Editor

**NEW SPECIES OF STRONGYLID NEMATODE,  
*LABIOSTRONGYLUS BIAKENSIS* (NEMATODA:  
STRONGYLOIDEA) FROM *MACROPUS AGILIS* (GOULD, 1842)  
FROM BIAK, PAPUA**

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**ABSTRACT**

*Labiostrongylus biakensis*, new species (Nematoda: Strongyloidea: Chabertiidae) was collected from the stomach of *Macropus agilis* (Agile Wallaby) in Papua-Indonesia. This species distinguished from its congeners by a combination of characters including the shape of buccal capsule, and the female tail, the form of genital cone and spicule, and the proportion of the ovejector. A key to the species of *Labiostrongylus* is given.

**Key words:** *Labiostrongylus*, new species, Nematoda, Chabertiidae, wallaby, Papua-Indonesia

**INTRODUCTION**

*Labiostrongylus* belongs to tribe Labiostrongylinea (Nematoda: Cloacininae: Chabertiidae), revised by Smales (2002) and now comprising seven genera: *Labiostrongylus*, *Labiosimplex*, *Labiomultiplex*, *Parazoniolaimus*, *Paralabiostrongylus*, *Dorcopsinema* and *Potorostrongylus*. The genus *Labiostrongylus* consists of the type species *L. labiostrongylus* Yorke & Maplestone, 1926 found in *Macropus agilis* from Australia and Papua New Guinea (Smales 1994); *L. arnhemensis* Smales, 2006 from *Macropus bernardus*

in, Jabiluka Australia (Smales 2006); *L. grandis* Johnston & Mawson, 1938, from *Macropus robustus* in Mount Liebig, Central Australia (Johnston & Mawson, 1938); *L. nabarlekensis* Smales, 1994, from *Petrogale brachyotis* in Nabarlek; *L. macropodis* Johnston and Mawson, 1938 remaining species inquirendum (see Smales 1994). *Labiostrongylus* differs from other genera in the tribe in having 6 prominent fleshy lips with pulp cavities, two lateral lips with amphids, 4 submedian lips with cephalic papillae, one dorsal and one ventral interlabium, intestinal diverticula present, bursal lobes clearly delineated and the dorsal lobe with clearly defined lappets (Smales 2002). During a biological survey of mammals in Biak, Papua, Indonesia in October 1985 some nematodes were collected from *Macropus agilis*, representing a new species, the description of which is presented herein.

## MATERIALS AND METHODS

Material used in this study was from the nematode collection of the Museum Zoologicum Bogoriense, Research Center for Biology, Indonesian Institute of Sciences, Cibinong-Indonesia, MZBNa 236 and 243. Specimens for light microscopy were fixed in warm 70% alcohol, cleared and mounted in lactophenol for examination as wet mounts. Specimens for SEM examination were postfixed in cacodylate buffer and glutaraldehyde, dehydrated through a graded series of alcohol and freeze dried. The specimens were attached to stubs with double cello tape, coated with gold and observed with a JSM5310 LV Electron Microscope. Figures 1-12 were made with the aid of a drawing tube attached to Olympus compound microscope. Measurements are given in micrometers as the mean followed by the range in parentheses, unless otherwise stated.

## DESCRIPTION

### *Labiostrongylus biakensis* n. sp. (Figs. 1-15)

**General:** Large stout worms, cuticle with transverse striations, mouth with 6 prominent fleshy lips; 4 submedian lips bilobed, broader at distal end than base, each bearing a cephalic papilla at base: 2 lateral lips smaller, conical, simple, each bearing an amphid on distal end, dorsal and ventral interlabia small, conical (Figs. 13, 14, 15). Mouth opening circular (Fig. 3); buccal capsule deeper than wide (Figs. 1,3); oesophagus long, clavate about  $\frac{1}{4}$  of total length. Deirids fine, thread like (Figs. 1, 10), anterior to nerve ring, oesophago-intestinal junction with medium sized bilobed diverticula, about same in length as width of oesophagus (Fig. 11).

**Male** holotype : MZB.Na.236 (based on 14 examined specimens)

Total length 27.7 mm (22.5-29.7) mm, width at cephalic end 279 $\mu$  (260-290) $\mu$ , maximum width 1118 $\mu$  (1040-1274) $\mu$ . Buccal capsule 113 $\mu$  (80-130) $\mu$  wide, 214 $\mu$  (150-260) $\mu$  deep, oesophagus length 6786 $\mu$  (6240-7072) $\mu$ ; deirid 970 $\mu$  (820-1120) $\mu$ , nerve ring 1400 $\mu$  (1144-1886) $\mu$  and excretory pore 1599 $\mu$  (1508-1690) $\mu$  from anterior end. Bursa small (Fig. 9), with distinct lobes, ventral lobes shortest, dorsal lobe longest with distinct lappets. Ventroventral and lateroventral rays opposite for most of length, reaching margin of bursa; externolateral shortest, not reaching margin of bursa, mediolateral and posterolateral longest, opposite, reaching margin of bursa, externodorsal ray arising close to lateral trunk, not reaching margin of bursa; dorsal trunk giving off pair stout lateral branches at  $\frac{1}{3}$  its length, bifurcating at  $\frac{2}{3}$  its length (Figs 8, 9). Spicule slender, bent laterally at about  $\frac{3}{4}$  its length, striated alae

not extending to tips (Fig. 5), length 5000 $\mu$  (4840- 5220) $\mu$ . Genital cone large, anterior lip larger, posterior lip smaller, with pair of tetrafid appendages (Fig. 7), gubernaculum small, cordate (Fig. 6) length 80, width 70.

**Female** (based on 13 examined specimens)

Total length 36.9 mm (34.1-39.7) mm, width at cephalic end 321 $\mu$  (260-390) $\mu$ , maximum width 1383 $\mu$  (1210-1508) $\mu$ , buccal capsule 130 $\mu$  (104-156) $\mu$  wide, 260 $\mu$  (208-312) $\mu$  deep, oesophagus length 7410 $\mu$  (7228-7592) $\mu$ , deirid 1210 $\mu$  (1020-1400) $\mu$ , nerve ring 1402 $\mu$  (1378-1426) $\mu$  and excretory pore 1500 $\mu$  (1439-1530) $\mu$ , from anterior end. Ovejector with short vestibule, sphincter longer than infundibulum; vagina vera length 1480 (Fig. 12), vulva 2366 $\mu$  (1898-2834) $\mu$  from posterior end, tail blunt conical (Fig 4), length 1350 $\mu$  (1612-1248) $\mu$ , no eggs seen.

**Type material**

Host : *Macropus agilis* (Gould, 1824)

Location : stomach

Locality : Biak, Papua- Indonesia

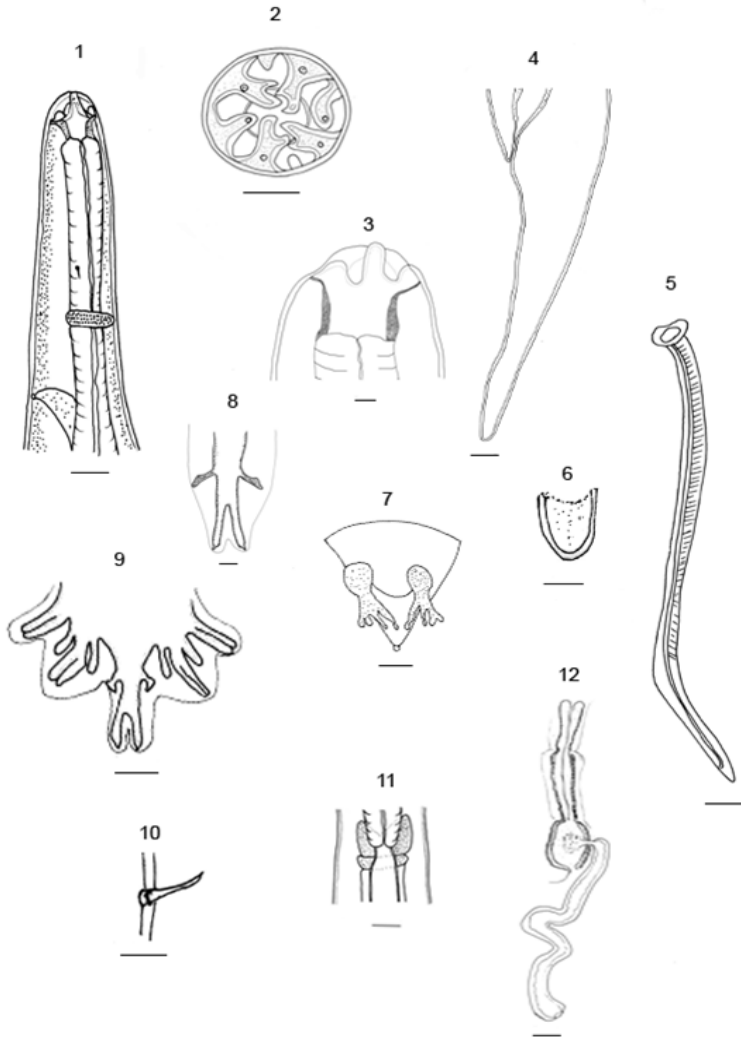
Place of deposition : Museum Zoologicum Bogoriense

Holotype : Male MZBNa 236

Allotype : Female MZBNa 236

Paratype : 6 males, 9 females, MZBNa 236 and 7 males and 3 females, MZBNa 234

Etymology : The species is named according to the locality of host found, Biak.



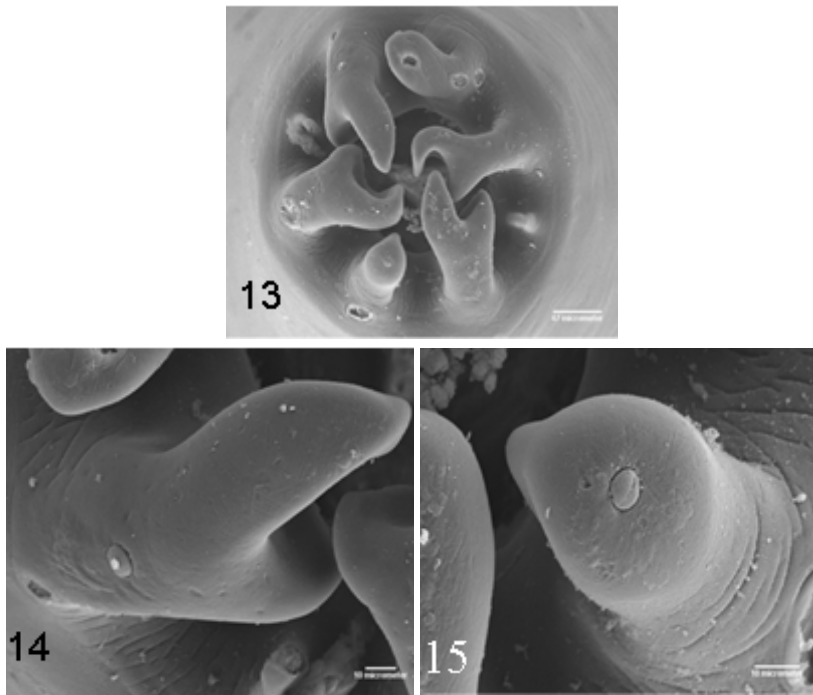
**Legends to Figures 1 - 12**

- |   |  |
|---|--|
| <p>1. Anterior end of female, lateral view<br/>                 2. Cephalic end male, en face view<br/>                 3. Buccal capsule, male, mediolateral view<br/>                 4. Posterior end female, lateral view<br/>                 5. Spicule, lateral view<br/>                 6. Gubernaculum, dorsal view<br/>                 7. Genital cone, dorsal view<br/>                 8. Dorsal ray of copulatory bursa, dorsal view<br/>                 9. copulatory bursa, dorsal view</p> | <p>10. Deirid<br/>                 11. Oesophago-intestinal junction showing intestinal diverticula, male, lateral view<br/>                 12. Ovejector</p> |
|---|--|

**Scale bars:** Fig.1,2,3, 9, = 100 $\mu$  ;  
 4,11, 12 = 200  $\mu$ ; 5 = 500  $\mu$ ; 6=50  $\mu$ ;  
 7 = 25  $\mu$ , 8= 50  $\mu$ ; 10=20  $\mu$



Endang Purwaningsih : New Species of Strongylid Nematode, *Labiostrongylus biakensis* n.sp.  
(Nematoda: Strongyloidea) From *Macropus agilis* (Gould, 1842) from Biak, Papua



**Legends to Figures 13 - 15**

- 13 . SEM image of cephalic end, en face view
- 14. SEM image of submedian lip
- 15. SEM image of lateral lip

**Scale bars:** Fig. 13 = 47  $\mu$ ; and 14, 15 = 10  $\mu$

**DISCUSSION**

The nematode found from *M. agilis* in Papua belongs to the genus *Labiostrongylus*, because it has the characters of the genus listed above and in particular it has dorsal and ventral interlabia. *Labiostrongylus biakensis* n. sp. differs from all its congeners in the form of the spicule, bent at  $\frac{3}{4}$  its length, the form of the genital cone posterior lip paired appendages with tetrafid tips, and

the very short lateral branches of the dorsal ray. *L. biakensis* is most similar to *L. nabarlekensis* Smales 1994 in general measurements but further differs in the proportions of the buccal capsule (deeper than wide in *L. biakensis*), in length of the spicule (4840-5220  $\mu$  versus 3450-3900  $\mu$ ) in *L. nabarlekensis* ) and the length of female tail (1612-1248 versus 3450-3900 in *L. nabarlekensis*). *Labiostrongylus biakensis* further differs from *L. labiostrongylus* Yorke & Maplestone 1926 which is also found in *M. agilis* in Papua New Guinea and has spicules of similar length but different proportions (5,5 % of total length versus 9,3 % total length in *L. labiostrongylus*), in having an adorned female tail tip in contrast to that of *L. labiostrongylus* which has a knob (Smales, 1994). *L. grandis* with much longer spicule 10.600 compared with 5000, bifid not tetrafid appendages of the genital cone, and *L. nabarlekensis* with shorter spicules (3625  $\mu$  vs 5000  $\mu$ ), and 6 finger like projections on each appendages of the genital cone both be readily distinguished from *L. biakensis*. These differences justify the designation of the new species *L. biakensis*.

**Key to species of *Labiostrongylus***

- 1. - Spicules more than 9500  $\mu$ m long. Oesophago-intestinal diverticula with 4 lobes.  
     Female tail stout, tip blunt. Dorsal lip of genital cone with pair bifid appendages ..... *L. grandis*
- Spicules less than 9500  $\mu$ m long. Female tail slender, tip conical ....  
     .....2
- 2.- Dorsal lip of genital cone with irregular finger like projections  
     appendages.....3

- dorsal lip of genital cone without above character..... 4
- 3. - Spicules 4200-5000  $\mu\text{m}$  long. Gubernaculum subcordate. Female tail ends in a knob Oesophago-intestinal diverticula small.....  
..... *L. labiostongylus*
- Spicules less than 4000  $\mu\text{m}$  long. Oesophago-intestinal diverticula large. Gubernaculum with elongated distal end. Female tail tip pointed.....  
..... *L. nabarlekensis*
- 4. - Spicules 4080-4760  $\mu\text{m}$  long. Dorsal lip of genital cone with irregularly trifid appendages. Female tail tapering to conical tip, ending in a knob.....  
..... *L. arnhemensis*
- Spicules 4840-5220  $\mu\text{m}$  long. Dorsal lip of genital cone with tetrafid tipped appendages. Female tail blunt, tip without terminal knobs.....  
..... *L. biakensis*

### ACKNOWLEDGMENTS

I wish to thank Drs. A. Suyanto, M.Sc. who provided the specimens for this study and Prof. Lesley Warner, South Australian Museum for reviewing the manuscript.

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# OBITUARY

## Dr. Sampurno Kadarsan



Late Dr. Sampurno Kadarsan passed away in Bandung on 17 September 2010 at the age of 81 years old. He was survived by his wife and four married daughters. He was born in Surabaya on 11 August 1929. However, he lived in Bogor for much of his time.

### Education

He entered Diploma in biology in 1955 under the Ministry of Agriculture. Then, he joined the University of California, Berkeley – USA and achieved BSc. degree in Entomology & Parasitology in 1959. Upon returning to Indonesia, he undertook further study at Bandung Institute of Technology (ITB) and achieved his first degree in biology in 1964. Then, he got an opportunity to enter the University of Maryland, College Park, USA for postgraduate study and achieved his PhD degree in 1971.

### Working Career

He started working in the division of Marine Fishery (*Djawatan Perikanan Laut*) in Jakarta. Then, he moved to the division of Nature Research (*Djawatan Penyelidikan Alam*) in Bogor as an assistant in biology. In 1960 he became the director of Museum Zoologicum Bogoriense, under the Centre for Nature Research Institute (*Lembaga Pusat Penyelidikan Alam*). In 1977 he became a senior professor at the Fakulti Perubatan, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia. He became a senior scientist at the National Biological Institute-Indonesian Institute of Sciences (LIPI) in 1981. In 1986 he was the Director of the Research & Development Centre for Biology and Head of the Indonesian Botanic Gardens, LIPI. He achieved Principle Scientist in 1990. Since 1993 he obtained professorship in parasitology at the Faculty of Veteriner – Bogor Agriculture University. He was the editor of journal of *Treubia* from 1992 to 1997, and remained as a proof reader until 2007.

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