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THE FIRST RECORD OF *ROBACKIA* SAETHER (DIPTERA: CHIRONOMIDAE) FROM PENINSULAR MALAYSIA

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ABSTRACT

The first record of *Robackia* sp is described from upstream of Langat River Selangor, Malaysia by its larval. This genus characterized having seven segmented antennae and with modified mandible's inner teeth. It has 14 toothed mentum and coarse ventromental plate. An improved key to larvae of *Robackia* from Wiederholm (1983) is provided.

Keywords: *Robackia* sp., Diptera, Chironominae, Chironomini, River, Peninsular Malaysia

ABSTRAK

Rekod pertama *Robackia* sp yang ditemui di hulu Sungai Langat Selangor, Malaysia. Genus ini dicirikan oleh tujuh segmen antenna dengan gigi dalaman mandibel terubahsuai. Ia mempunyai 14 mentum dan plat ventromental kasar. Kekunci untuk larva yang telah diubahsuai dari Wiederholm (1983) disertakan.

Kata kunci: Diptera, Chironominae, Chironomini, Sungai, Semenanjung Malaysia

INTRODUCTION

Robackia is one of the member of *Harnischia* complex. To date, there are five described spesies namely *R. demeijerei* (Krusemann 1933), *R. claviger* (Townes 1945), *R. pilicauda* (Saether 1977), *R. aculeata* (Zorina 2003) and *R. parallela* (Chuncai Yan & Xinhua Wang 2006). Four species described earlier were from Holarctic region (Palaearctic and Nearctic) and the latest (*R. parallela)* was described from oriental region. There is no record of *Robackia* from Peninsular Malaysia. As a tropical country, Malaysia has reported to have tremendous aquatic species in freshwater ecosystem (Cranston 1982). However, only limited number of studies diversity and distribution of Chironomidae has been conducted. Ahmad et al. (2008) and Al-Shami et, al., (2009, 2010) only focused. on application of chironomid species as an indicator. (Vedamanikam & Shazilli 2008 and Warrin Ebau, et. al. 2008). This study reveals a new record of *Robackia* from upstream of Langat River, Selangor, Malaysia.

STUDY AREA

Langat River is a major river in Selangor, Malaysia. The river originates from Gunung Nuang, Selangor and drain huge catchment downstream. At the upstream site, this river receives water from various tributaries such as Congkak River, Lui River, Perdik River, Tekali River, Lepok River, Semungkis River, Tekala River and Pangsun River. Those streams are characterised by shallow and clear water,

cobble and sandy substrated and vegetated. Most of tributaries are 1st. and 2nd. order streams and according to Malaysian water quality index (WQI), all streams and main river at the upstream area are in pristine conditions. Chironomidae sampling was conducted in seven streams. Thirthy nine sampling stations were sampled and a total of 2500 sample units were collected.

MATERIAL AND METHODS

Chironomid samples were collected using Surber net (300 µm) and sample were sieved and rinse through 300 µm pore size net and preserved in ethanol (70%). The chironomid larvae were collected manually and treated with potassium hydroxide (10%) and left for 24 hrs to dissolve soft tissue. Chironomid samples were then neutralised using acetate acid and were mounted as permanent slide following the procedure by Epler (2001). Samples were identified to genus level following Wiederholm (1983) and Epler (2001). Images were captured using microscope Olympus BX41.

RESULT AND DISCUSSION

Chironominae – Chironomini

Robackia Saether (1977)

The *Robackia* was found in Lui River, which is one of Langat River tributary. The Lui River is a small stream flows through reserve forest and small villages. The river is shallow (<1m depth) and characterised by clear and slow moving water. Cobble and sand were dominant substrate. From 272 individual collected, only 1 *Robackia* was recorded. *Robackia* lives in pristine area that can be determine by the total organic carbon (TOC)%. The TOC of Lui River 0.91% still under the minimum level of polluted river (1.5%).

Material Examined

Lui River, Selangor, Malaysia (LANGAT RESERVE FOREST), 03º 10' 08.6"N; 101º 52' 22.8"E 99m a.s.l., : larval, 21. IX. 2010, Z. Abd Aziz. Remarks: Stream, slow flow lowland stream, vegetated

Distribution: Canada, Idaho USA, Alabama & Georgia USA, Russia, China and Malaysia.

Diagnostic characters
The larvae can be distinguished from all other Chironomini and *Harnischia* complex by having 7 antennal segments and slender, seta-like SII (Wiederholm 1983).

Description: Larval (n=1). Total length about 6 mm. 2 eyes spot at each side of the head.

Antenna: 7 segmented; basal segment shorter than combined segment 2 and 3.

Blade: arise distally on segment 2 up to the tip of segment 4. Lauterborn organ absent. Antenna ratio 1.0: 2.2

Labrum:. SI and SIII fine, seta-like; SII seta-like moderately long and broad. Labral lamella absent. Pecten epiphyrangis a small triangular plate. Premandible 4 teeth; brush present.

Mandible: Dorsal tooth absent; apical tooth very long with 4 inner teeth, Seta subdentalis very long and slender.

Mentum: Median teeth slightly lower from the first pair of lateral teeth; unicolourous with 14 teeth. Ventromental plate coarsely striated with anterior margin strongly crenate and about as wide as mentum.

Maxilla: Palp very long with first segment 4x longer than wide.

Body: Post parapods elongate. Procercus about as high as wide. Anal tubules conical.

Key to *Robackia* Saether (1977)

1. SI and SII almost invariably simple, frequently blade-like. Labral lamela usually absent. Pecten epiphyrangis a single plate or scale, sometimes large and distinctly toothed, more commonly small, without distinct teeth though sometimes lobed or serrated. Dorsal tooth of mandible always absent, pecten mandibularis usually absent or reduced to 1-4, occasionally more, lamellae .....2. *Harnischia* complex of tribe Chironomini

– SI usually plumose, SII never blade-like. Labral lamella present and usually well developed. Pecten epiphyrangis as wide, distally toothed plate or divided into 3 usually toothed. Dorsal tooth of mandible present or absent. Pecten mandibularis almost always well developed, rarely absent.....Tribes Pseudochironomini and Chironomini (excluding *Harnischia* complex)

2. Antennae almost as long as head, 8 segmented. Mentum strongly to very strongly concave. The body apprently consist of 20 segments.....*Chernovskiia*

– Antennae usually much shorter and with at most 7, usually 5 or 6 segments. Mentum not as above.....3

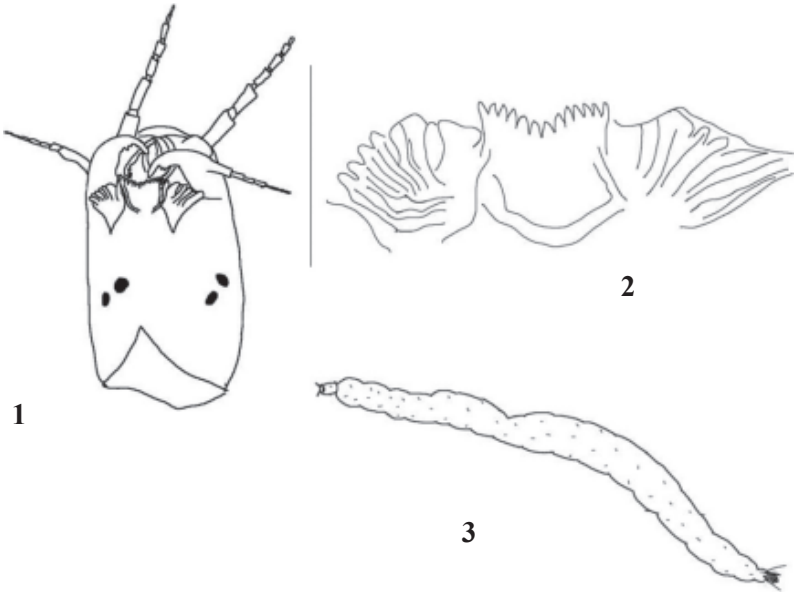
3. Pecten epiphyrangis with numerous, transparent teeth .....*Parachironomus*

– Pecten epiphyrangis not as above, scale-like, may or may not be partially divided into 2-3 lobes or teeth, often greatly reduced 4

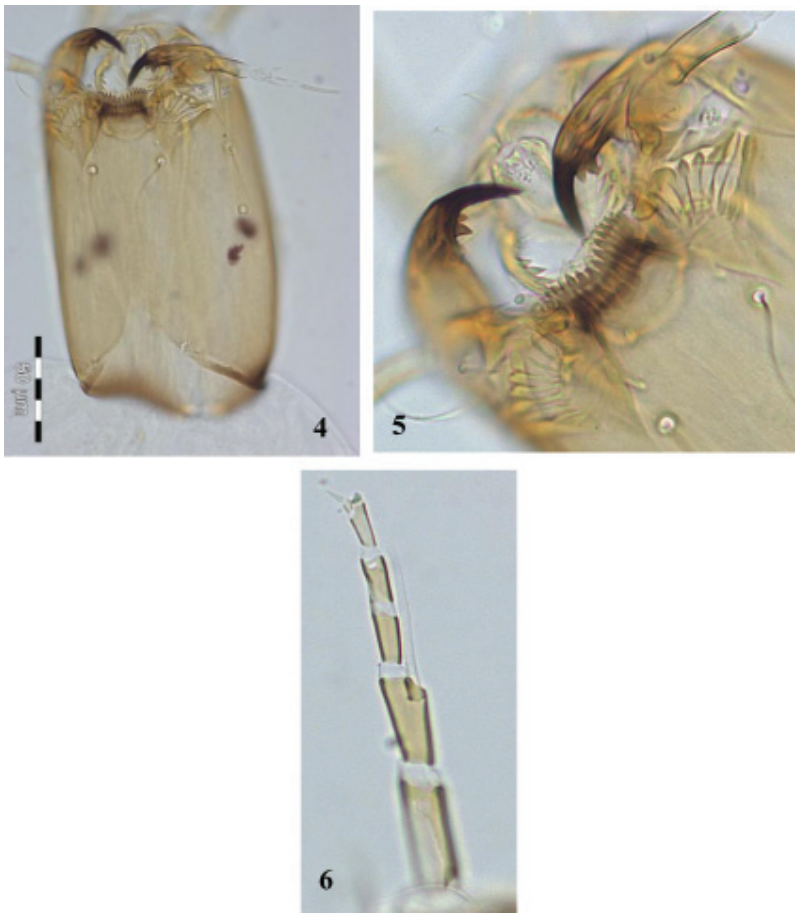
4. Premandible bifid. Median tooth of mentum usually double, or at least distinctly notched medially. If simple then median part of mentum not very steepy sloping .....*Cladopelma*

– Premandible with at least 3 teeth, usually more. Mentum not as above 5

5. Antenna 7 segmented, mentum with 12 or 14 teeth, subequal or median teeth slightly wider and lower than lateral teeth .....*Robackia* (Fig.1-6)



Figs. 1-3. (1) Head capsule and eyes spot (2) ventromental plate and mentum (3) body segments with short seta (drawing using intuos$_4$ proffesional pen tablet).



Figs. 4-6. (4) Head capsule, (5) mentum, mandible and ventromental plate, (6) Antenna of *Robackia* (photographs with different magnification).

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