

## RASBORA PATRICKYAPI, A NEW SPECIES OF CYPRINID FISH FROM CENTRAL KALIMANTAN, BORNEO

Tan Heok Hui

Raffles Museum of Biodiversity Research, Department of Biological Sciences,  
National University of Singapore, Kent Ridge 119260, Republic of Singapore.  
E-mail: dbsth@nus.edu.sg

**ABSTRACT.** – *Rasbora patrickyapi*, new species, is described from the lowland blackwaters of Central Kalimantan, Borneo. It appears to be most closely related to *R. kalochroma* and *R. einthovenii*, from which it differs in having a different life colouration, a complete lateral line with 28 scales and presence of a supra-anal black blotch. It is apparently stenotopic to black water of peat swamp forests.

**KEY WORDS.** – Taxonomy, new species, peat swamp, Borneo, *Rasbora*.

### INTRODUCTION

The lowland freshwater habitats of Central Kalimantan, Indonesian Borneo, are still poorly explored. Not surprisingly, a number of new fish species were recently described from this area. They include – Cyprinidae: *Eirmotus isthmus* Tan & Kottelat (2008), *Paedocypris carbunculus* Britz & Kottelat (2008); Cobitidae: *Kottelatlimia hipporhynchus* Kottelat & Tan (2008); Bagridae: *Nanobagrus immaculatus* Ng (2008a); Siluridae: *Ompok supernus* Ng (2008b); Osphronemidae: *Betta uberis* Tan & Ng (2006), *Parosphromenus opallios* Kottelat & Ng (2005).

While examining shipments of *Rasbora kalochroma* from Central Kalimantan at an ornamental fish export facility in Singapore, the author was alerted to an unusual species of *Rasbora* mixed with the *R. kalochroma*. This species resembles *R. kalochroma* in colour and size, but has a colour pattern that is reminiscent of *R. einthovenii*. Further examination confirms it to be a new species of *Rasbora*, and it is herein described.

### MATERIAL AND METHODS

Specimens were collected with push nets, fixed in 10 % formalin and later transferred to 75 % ethanol for long term storage. Specimens were measured with Mitutoyo® digital calipers on the left side according to Kottelat (1984), colour pattern terminology follows Brittan (1954). Abbreviations used: SL – standard length, HL – head length, BL – trunk length (from posterior edge of opercle

to caudal fin base). Last two rays of dorsal and anal fins articulate on the same pterygiophore and is counted as two.

Specimens examined are deposited in the Museum Zoologicum Bogoriense, Bogor (MZB); Collection of Maurice Kottelat, Cornol, Switzerland (CMK); and the Zoological Reference Collection, Raffles Museum of Biodiversity Research, National University of Singapore, Singapore (ZRC).

### TAXONOMY

#### *Rasbora patrickyapi*, new species

(Figs. 1A–D)

**Material examined.** – Holotype: MZB 10707, 41.8 mm SL; Central Kalimantan: Rungan-Kahayan basin, Sungei Rijak, km 84 along road from Palangkaraya to Telakin (01°37.319'S 113°37.560'E, 54 m asl); P. Yap et al., 18 Sep.2007.

Paratypes – ZRC 51748, 11 ex., MZB 10708, 4 ex., CMK 21508, 5 ex., 29.8–42.2 mm SL; same locality data as holotype. – ZRC 51749, 20 ex., 31.9–44.5 mm SL; Central Kalimantan: Rungan-Kahayan basin, from aquarium fish trade; P. Yap, 24 Jul.2007. – MZB 5334, 11 ex., paratypes, 23.6–57.0 mm SL; Central Kalimantan: Katingan River basin, Kecamatan Katingan ilir, Sungei Hampalit; A. Jaim, 18 Mar.1984. – ZRC 51750, 5 ex., 23.8–46.5 mm SL; Central Kalimantan: Katingan River basin, stream before Tumbang Samba; T. Idei, 2004.

**Diagnosis.** – *Rasbora patrickyapi* is differentiated from its congeners in the following combination of characters: in life, body with iridescent, black midlateral stripe bordered

by a white stripe above it, reddish unpaired fins, sides of body with violet sheen, dorsum with golden sheen. Lateral line complete with 28 scales; distinct symphyseal knob; body depth at dorsal fin origin 23.9–26.1% SL; predorsal scales 12–13 (modally 13); transverse scales 5.1.2; circumpeduncular scales 15; predorsal length (54.0–56.6% SL).

**Description.** – General body shape and appearance as shown in Fig. 1; meristics and morphometrics in Table 1. Head broadly pointed, relatively short (head length 27.8–29.0% SL), relatively narrow (head width 47.8–49.1% HL) and deep (head depth 58.6–63.1% HL). Mouth terminal and slightly upturned, symphyseal knob distinct; no tubercles present. Orbit relatively large (27.7–30.4% HL), situated nearer to tip of snout than opercle edge. Interorbital width large (33.3–37.2% HL), dorsal profile a gentle slope to slight concavity. Slope of nape gentle from head to body, body cylindrical, compressed laterally, relatively slender, deepest at dorsal fin origin (23.9–26.1% SL), most slender at caudal peduncle (13.5–14.9% SL). Lateral line complete, running diagonally from opercle edge towards pelvic fin origin and to just below the middle of caudal base. Dorsal and anal fins

placed relatively far back (54.0–56.6% SL and 68.7–70.8% SL respectively).

Dorsal fin triangular, with 2 simple and 7 branched rays, last two rays articulate on the same pterygiophore; origin above lateral line scale 7 or 8 (modally 8), behind origin of pelvics. Caudal fin forked, with upper lobe longer than lower lobe, ratio of length versus caudal peduncle depth 1.54–1.66. Anal fin triangular, with 2 simple and 5 branched rays, last two rays articulate on the same pterygiophore; origin below lateral line scale 13 or 14 (modally 13). Pelvic fin triangular, with 1 simple and 7 branched rays, adpressed fin does not reach anal-fin origin; origin below lateral line scale 6 or 7 (modally 7); pelvic axillary scales present, just longer than base of pelvic fin. Pectoral fin triangular, with 1 simple and 12 branched rays, adpressed fin not reaching pelvic-fin origin, axillary lobe present, about equal length with pectoral-fin base. Two scale rows between lateral line and pelvic-fin origin.

Predorsal scales 12–13 (modally 13), transverse scales at anus 5.1.2, transverse scales at dorsal-fin origin 6.1.2, lateral scales 28 (+ 2 on caudal fin), caudal peduncle scales 4.1.2.

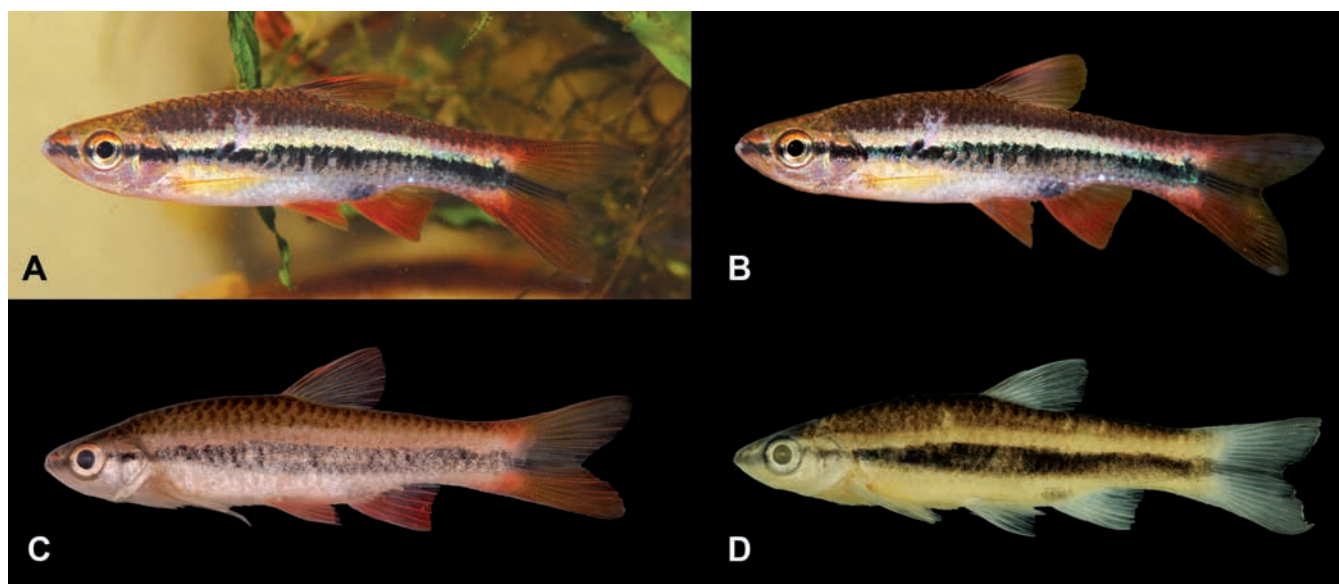


Fig. 1. *Rasbora patrickyapi*, **A**, ZRC 51749, paratype, ca. 40 mm SL, life colouration; **B**, ZRC 51749, paratype, ca. 40 mm SL, life colouration; **C**, ZRC 51748, paratype, 41.4 mm SL, freshly preserved; **D**, MZB 10707, holotype, 41.8 mm SL, preserved material, Central Kalimantan: Rungan.



Fig. 2. *Rasbora kalochroma*. ZRC 51752, 37.9 mm SL; Central Kalimantan: Rungan.



Fig. 3. *Rasbora einthovenii*. ZRC 50123, 32.1 mm SL; West Kalimantan: Sambas.

Table 1. Meristics and morphometric data of *Rasbora patrickyapi*.

Catalogue numbers	<i>Rasbora patrickyapi</i> , new species	
	MZB 10707 (holotype)	Holotype + ZRC 51748 (paratypes)
Sample size	1	5
Standard length (mm)	41.8	39.3–41.8
<b>% Standard length</b>		
Total length	130.1	129.6–133.2
Trunk length	72.2	71.5–73.6
Predorsal length	56.2	54.0–56.6
Preanal length	70.8	68.7–70.8
Prepelvic length	51.9	50.3–51.9
Head length	27.8	27.8–29.0
Body depth at dorsal fin origin	23.9	23.9–26.1
Body depth at anus	20.3	20.3–21.5
Caudal peduncle depth	13.9	13.5–14.9
Caudal peduncle length	22.5	21.1–23.8
Dorsal fin base length	12.2	11.6–12.2
Anal fin base length	12.7	10.9–12.7
Pelvic fin length	18.4	16.8–18.6
Pectoral fin length	24.4	22.6–24.4
Upper caudal lobe length	31.8	31.4–36.4
Middle caudal length	20.6	16.8–20.6
Lower caudal lobe length	28.0	28.0–34.1
<b>% Head length</b>		
Head depth	58.6	58.6–63.1
Head width	48.3	47.8–49.1
Snout length	29.3	27.7–29.7
Orbital diameter	28.4	27.7–30.4
Interorbital width	37.1	33.3–7.2

Vertebral count: 17–18 + 15–16, total = 32–34 (mode 33, n = 10).

**Live coloration.** – See Figs. 1A–B. Dorsum of head and body dark brown with gold sheen. Top of eye golden-orange. Black stripe running from lower jaw, through eye to opercle edge, continuing onto midlateral black stripe (margins are irregular) to caudal base and through to tips of middle caudal fin rays; with green iridescence. A white stripe above midlateral black stripe posterior to opercle edge to caudal base. A black supranal blotch above anal fin origin. Body with violet sheen throughout. All unpaired fins reddish, pelvic fin reddish and pectoral fin yellowish. Dorsal fin anterior base to mid area with black pigments.

**Coloration in preservative.** – See Figs. 1C–D. Freshly preserved specimens with colours as in life, but muted and lacking iridescence and sheen (Fig. 1C). Specimens stored in ethanol were discoloured, with no red colouration (Fig. 1D). Body cream, with dark brown dorsum and black central stripe. The midlateral black stripe is broadest at the middle of the body, sometimes interrupted with cream patches above the region between the pelvic and anal fins. Mid-dorsal black stripe present, mid-ventral black stripe present on caudal peduncle.

**Distribution.** – *Rasbora patrickyapi* is currently known only from the lowland peat swamps and degraded heath forest of the Katingan and Kahayan river basins of Central Kalimantan, Borneo (Fig. 4).

**Field notes.** – *Rasbora patrickyapi* inhabits shallow, slow-flowing swampy areas next to the flowing blackwater streams. At the type locality (Fig. 5), and is sympatric with *Rasbora kalochroma*. Other fishes include: Cyprinidae – *Osteochilus pentalineatus*, *O. spilurus*, *O. bleekeri*, *Rasbora cephalotaenia*, *Sundadanio* cf. *axelrodi*, *Systomus rhomboocellatus*, *S. johorensis*, *S. trifasciatus*; Cobitidae – *Kottelatlimia hipporhynchus*, *K. pristis*; Nemacheilidae – *Nemacheilus* sp.; Siluridae – *Ompok supernus*, *Silurichthys phaiosoma*; Clariidae – *Clarias leiacanthus*; Hemiramphidae – *Hemiramphodon chrysopunctatus*; Nandidae – *Nandus nebulosus*; Osphronemidae – *Betta anabatooides*, *B. foerschi*, *Luciocephalus pulcher*, *Sphaerichthys selatenensis*; Channidae – *Channa bankanensis*; Mastacembelidae – *Macrognathus circumcinctus*. The lowland swamplands around Palangkaraya have mainly been logged, and the vegetation is secondary. The habitat is heath forest interspersed with peat swamp. The substrate are a mixture of peat and silica sand.



**Etymology.** – Named for Patrick Yap Boon Hiang, a long-time supporter of the museum and freshwater fish enthusiast and exporter, who has generously donated much fish material for the author’s research.

**Remarks.** – *Rasbora patrickyapi* belongs to the *R. einthovenii* group (as defined by Brittan, 1954) but displays characters of both *R. einthovenii* and *R. kalochroma*.

Brittan (1954) listed four species belonging to the *R. einthovenii* group, and these are *R. einthovenii*, *R. cephalotaenia*, *R. tubbi* and *R. jacobsoni*. The basis for this species group is not very clearly defined, Brittan (1954) only listed the following characters: circumpeduncular scale rows 12 (except for *R. tubbi*, with 14); and an overall morphological similarity. He also mentioned the variable lateral line scale counts (*R. einthovenii* 29–32, *R. cephalotaenia* 32–34, *R. tubbi* 34–35, and *R. jacobsoni* 24–27). From the present study, the circumpeduncular scale rows are counted based on a slightly different technique, and *R. einthovenii* has 13 and *R. patrickyapi* has 15. The overall morphology of *R. patrickyapi* places it with the *R. einthovenii* group.

*Rasbora patrickyapi* differs from *R. einthovenii* in the following characters: body with violet sheen in life (vs. absence); reddish unpaired fins in life (vs. hyaline to pale yellow); well demarcated broad white stripe above black midlateral stripe (vs. weakly marked, see Fig. 3); absence of reticulate pattern on edge of body scales along dorso-lateral area above pectoral to pelvic fin region (vs. presence); lower margin of midlateral black stripe indistinct (vs. conspicuous in lower half of body); dorsal and anal fins without marking (vs. sub-distal black bars); dorsal profile of body a gentle

slope (vs. more arched); presence of supra-anal black blotch (vs. absence); more pelvic-fin rays (1, 7, vs. 1, 6); more lateral scales (28 +2, vs. 23–24 +2); more circumpeduncular scales (15 vs. 13); smaller predorsal length (54.0–56.6% SL, vs. 56.7–58.6); smaller pectoral fin length (22.6–24.4% SL, vs. 24.3–26.4); smaller head width (47.8–49.1% HL, vs. 49.5–54.3); smaller interorbital width (33.3–37.2% HL, vs. 40.7–46.0).

*Rasbora patrickyapi* differs from its sympatric congener, *R. kalochroma* in the following characters: presence of black midlateral stripe (vs. absence of stripe, instead having two black rounded blotches, one above the pectoral fin and the other above the anal fin, see Fig. 2); body with violet sheen in life (vs. red); pectoral, pelvic and anal fins without distal tip of second ray extending beyond interradial membrane (vs. tips of second ray extending beyond interradial membrane); presence of supra-anal black blotch (vs. absence); more pectoral-fin rays (1, 12 vs. 1, 11); more transverse scales at dorsal-fin origin (6.1.2 vs. 5.1.2); more circumpeduncular scales (15 vs. 12); dorsal, anal and pelvic fins placed more anterior in relation to lateral scale number (dorsal: 7–8 vs. 10; anal: 13–14, vs. 16–16½; pelvic: 6–7, vs. 8); smaller preanal length (68.7–70.8% SL, vs. 70.8–73.1); more slender body (body depth 20.3–21.5 % SL vs. 21.9–23.0); more slender caudal peduncle (its depth 13.5–14.9% SL vs. 15.3–17.1; its length 21.1–23.8 % SL vs. 18.3–21.2); larger ratio of length versus caudal peduncle depth (1.54–1.66 vs. 1.12–1.27); smaller pelvic fin length (16.8–18.6% SL vs. 18.7–22.1); smaller pectoral fin length (22.6–24.4% SL vs. 25.0–29.3); smaller head width (47.8–49.1% HL vs. 50.0–56.4); smaller interorbital width (33.3–37.2% HL vs. 41.3–47.3).

*Rasbora patrickyapi* can be differentiated from the rest of striped rasboras occurring in Borneo (namely *R. agyrotaenia*, *R. cephalotaenia*, *R. dusonensis*, *R. gracilis*, *R. rutteni*, *R. sarawakensis*, *R. tornieri* and *R. trifasciata*) by the following characters: it is a stenotopic inhabitant of peat swamps (vs. riverine habitat of *R. agyrotaenia*, *R. dusonensis* and *R. tornieri*; vs. hill stream habitat of *R. rutteni*, *R. sarawakensis* and *R. trifasciata*; vs. swamp forest habitat of *R. cephalotaenia* and *R. gracilis*), lateral scale count of



Fig. 4. Map of Borneo showing distribution of *Rasbora patrickyapi* (circle); type locality of *Rasbora einthovenii* (square); type locality of *Rasbora kalochroma* (triangle).



Fig. 5. Type locality of *Rasbora patrickyapi* (March 2008).

28 (vs. 24–27 of *R. sarawakensis* and *R. trifasciata*; vs. 29–35 of *R. dusonensis*, *R. cephalotaenia*, *R. agyrotaenia*, *R. gracilis* and *R. tornieri*), presence of black supra-anal blotch (vs. black supra-anal stripe of *R. sarawakensis*, *R. cephalotaenia*, *R. agyrotaenia*, *R. tornieri* and *R. gracilis*; vs. absence in *R. dusonensis* and *R. rutteni*) (data extracted from Brittan, 1954, and Kottelat et al., 1993).

**Comparative material.** – *Rasbora einthovenii* – ZRC 50123, 5 ex., 26.4–34.7 mm SL; West Kalimantan: Sambas [type locality] basin, Sungei Sinabar, blackwater tributary of Sambas River (Fig. 3). *Rasbora kalochroma* – ZRC 51451, 10 ex., 33.3–60.2 mm SL; Central Kalimantan: Kahayan basin, Rungan River, aquarium trade. – ZRC 51751, 14 ex., 37.8–52.5 mm SL; Central Kalimantan: Katingan basin, Kasongan east area. – ZRC 51752, 4 ex., 25.7–39.7 mm SL; Central Kalimantan: Rungan-Kahayan basin, Sungei Rijak, km 84 along road from Palangkaraya to Telakin (Fig. 2).

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