

Polydactylus konadaensis Mishra and Krishnan, 1993, a junior synonym of *Filimanus xanthonema* (Valenciennes in Cuvier and Valenciennes, 1831) (Perciformes: Polynemidae)

Hiroyuki Motomura^{1,✉}, B.V. Seshagiri Rao², B. Ratnamala², and Yukio Iwatsuki³

¹ *Miyazaki University, the United Graduate School of Agricultural Sciences, Kagoshima University, 1-1 Gakuen-kibanadai-nishi, Miyazaki 889-2192, Japan (e-mail: a02113u@cc.miyazaki-u.ac.jp)*

² *Department of Zoology, D. N. R. College, Bhimavaram, Andhra Pradesh 534-202, India*

³ *Division of Fisheries Sciences, Faculty of Agriculture, Miyazaki University, 1-1 Gakuen-kibanadai-nishi, Miyazaki 889-2192, Japan (e-mail: yuk@cc.miyazaki-u.ac.jp)*

Received: July 2, 2000 / Revised: November 2, 2000 / Accepted: January 12, 2001

Ichthyological Research

©The Ichthyological Society of Japan 2001

Ichthyol Res (2001) 48: 203–206

Abstract *Polydactylus konadaensis* Mishra and Krishnan, 1993 was described on the basis of two specimens from Konada, Andhra Pradesh, east coast of India. Although the new species was placed in the genus *Polydactylus*, our examination of the type specimens of the species showed them to represent a species of *Filimanus*. Furthermore, the characters of those specimens were consistent with those of the lectotype, paralectotype, and other specimens of *F. xanthonema* (Valenciennes in Cuvier and Valenciennes, 1831). Accordingly, *Polydactylus konadaensis* is herein regarded as a junior synonym of *F. xanthonema*.

Key words Polynemidae · Synonymy · *Polydactylus konadaensis* · *Filimanus xanthonema*

The polynemid fish genus *Filimanus* Myers, the next most specious group after *Polydactylus*, was recently reviewed by Feltes (1991), who included six species: *F. heptadactyla* (Cuvier in Cuvier and Valenciennes), *F. hexanema* (Cuvier in Cuvier and Valenciennes), *F. perplexa* Feltes, *F. sealei* (Jordan and Richardson), *F. similis* Feltes and *F. xanthonema* (Valenciennes in Cuvier and Valenciennes). Mishra and Krishnan (1993) subsequently described *Polydactylus konadaensis* as a new species on the basis of two specimens from Konada, Andhra Pradesh, east coast of India. However, they did not refer to Feltes' revision of the genus *Filimanus*.

Recent examination of the type specimens of *Polydactylus konadaensis* showed them to in fact represent a species of *Filimanus*. Furthermore, the characters of those specimens were consistent with those of the lectotype, paralectotype and other specimens of *F. xanthonema*. Accordingly, *Polydactylus konadaensis* is regarded as a junior synonym of *F. xanthonema*.

Counts and measurements generally follow Hubbs and Lagler (1958) and Feltes (1991), with some modifications following Motomura et al. (2000a). Standard length is expressed as SL. Institutional codes follow Leviton et al. (1985), with additional institutional abbreviations as follows: Division of Fisheries Sciences, Miyazaki University, Japan (MUFS); Phuket Marine Biological Cen-

ter, Thailand (PMBC); Marine Biological Station, Zoological Survey of India, India (ZSI/MBS); and Southern Regional Station, Zoological Survey of India, India (ZSI/SRS).

Results and Discussion

The holotype (ZSI/MBS-F-631, 105 mm SL; Fig. 1A) and the paratype of *Polydactylus konadaensis* Mishra and Krishnan, 1993 have the following morphological characters (see Table 1 for counts and measurements): body oblong, compressed; orbit diameter greater than snout length; lower lip well-developed; maxillary scales present; depth of posterior margin of maxilla less than eye diameter; dentary teeth restricted to dorsal surface of lower jaw; posterior margin of preopercle serrated; villiform teeth in broad bands on vomer, palatines and ectopterygoids; width of teeth bands on upper and lower jaws narrower than space separating teeth bands on opposing premaxilla; interorbital region of frontals nearly straight; pectoral fin insertion well below lateral midline on body; all pectoral fin rays unbranched; tip of fourth pectoral filament (longest) extending beyond tip of pelvic fin; second dorsal fin base shorter than anal fin base; distance between pelvic fin base and anal fin base less



Fig. 1. **A** Holotype of *Polydactylus konadaensis*, ZSI/MBS-F-631, 105 mm SL. **B** Lectotype of *Filimanus xanthonema*, MNHN A. 3033, 1 of 2 specimens, 110 mm SL. The snout of the lectotype of *F. xanthonema* is slightly shrunken, owing to the distortion of cartilaginous tissue

than head length; lateral line simple, extending from upper end of gill opening to middistal margin of caudal fin membrane.

Although Mishra and Krishnan (1993) placed their new species in the genus *Polydactylus*, this was clearly erroneous. Both the type specimens clearly exhibited the following diagnostic characters of the genus *Filimanus*; large eye, width of teeth bands on upper and lower jaws narrower than space separating teeth bands on opposing premaxilla, pectoral fin insertion well below midline on side of body and dorsalmost pectoral filament length less than standard length (Feltes, 1991, 1993; Motomura et al., 2000b). Accordingly, their new species clearly belonged to the genus *Filimanus*, which was currently known to be around South and Southeast Asia.

Feltes (1991) revised the genus *Filimanus*, recognizing six species. The foregoing characters of the holotype and paratype of *Polydactylus konadaensis* are consistent with those of the lectotype (Fig. 1B), paralectotype and other specimens of *F. xanthonema* (Valenciennes in Cuvier and Valenciennes, 1831) (Table 1). Accordingly, the former is herein regarded as a junior synonym of the latter. *Polynemus diagrammicus* Bleeker, 1845 (a questionable synonym because of being a *nomen nudum*) and

Polynemus pfeifferi Bleeker, 1853 were earlier treated as junior synonyms of *F. xanthonema* by Feltes (1991) (actions concurred with here), although he stated that the present whereabouts of the type specimens of both the former were unknown.

Filimanus xanthonema is similar to *F. hexanema* (Cuvier in Cuvier and Valenciennes) in usually having six pectoral filaments (rarely 5 or 7; see Table 1). The former, however, differs from *F. hexanema* in having the shorter pectoral filaments (not extending to midpoint of anal fin vs. extending well past midpoint of anal fin in latter) and the depth of the posterior margin of the maxilla less than the eye diameter (vs. greater than eye diameter) (Feltes, 1991; this study). According to Feltes (1991) and this study, other congeners can be distinguished from these, also by the number of pectoral filaments: *F. heptadactyla* (usually 7), *F. perplexa* (7), *F. sealei* (8, occasionally 7) and *F. similis* (7). Further detailed descriptions and comparisons of these species were given by Feltes (1991).

Comparative material examined. *Filimanus heptadactyla* (Cuvier in Cuvier and Valenciennes): FSKU-P 19771 (2 specimens), 89–90 mm SL; NTM S. 14784-007 (2), 112–113 mm SL; UMMZ 213333 (2), 99–106 mm SL; USNM 72741, 52 mm SL. *F. hexanema* (Cuvier in Cuvier and Valenciennes): FSKU-P 4113

Table 1. Counts and measurements of the holotype and paratype of *Polydactylus konadaensis*, and the lectotype, paralectotype and non-type specimens of *Filimanus xanthonema*, expressed as thousandths of standard length

	<i>Polydactylus konadaensis</i>		<i>Filimanus xanthonema</i>	
	Holotype ZSI/MBS-F-631	Paratype ZSI/MBS-F-632	Lectotype MNHN A. 3033	(from Feltes, 1991) <i>n</i> = 55 ^a
Standard length (mm)	105	97	110	38.6–135.2
Counts (modes)				
Dorsal fin rays	VIII-I, 12	VIII-I, 12	VIII-I, 11	VIII-I, 11–13 (12)
Anal fin rays	III, 11	III, 11	III, 11	III, 10–12 (11)
Pectoral fin rays	15	15	15	13–15 (15)
Pectoral filaments	6	6	6	5–7 ^b (6)
Pelvic fin rays	I, 5	I, 5	I, 5	—
Pored lateral line scales	47	46	47	43–52 (47)
Scales above and below lateral line	6/11	6/10	6/10	5–8 (6)/9–12 (10)
Gill rakers	20 + 24 = 44	19 + 23 = 42	20 + 24 = 44	36–46 (43)
Measurements (means)				
Head length	312	309	309	277–348 (306)
Body depth	319	309	307	267–349 (313)
Second body depth	321	328	313	259–353 (318)
Body width at pectoral fin base	134	123	115	102–146 (124)
Snout length	56	45	52	39–71 (57)
Eye diameter	66	69	69	65–90 (79)
Orbit diameter	87	79	79	—
Interorbital width	84	78	93	77–98 (85)
Postorbital length	179	179	185	140–342 (183)
Upper jaw length	152	144	156	140–166 (153)
Pre-1st dorsal fin length	353	353	359	318–398 (371)
Pre-2nd dorsal fin length	605	594	605	512–633 (596)
Pre-anal fin length	612	606	611	572–665 (620)
First dorsal fin origin to anal fin origin	427	428	412	364–470 (434)
Pelvic fin origin to anal fin origin	236	248	245	186–315 (245)
Second dorsal fin base length	189	167	169	143–209 (181)
Anal fin base length	194	206	176	142–215 (187)
Longest pectoral fin length	247	236	258	225–283 (260)
Longest pectoral filament length	389 [4th]	367 [4th]	406 [4th]	266–474 (383) [3rd or 4th]
Pectoral fin base length	96	93	96	—
Longest pelvic fin ray length (1st)	152	171	167	146–228 (182)
Longest 1st dorsal fin spine length (3rd)	189	201	199	144–237 (203)
Second dorsal fin spine length	79	85	78	71–140 (96)
Longest 2nd dorsal fin ray length (2nd)	220	216	209	161–261 (219)
Longest anal fin spine length (3rd)	87	93	78	73–121 (94)
Longest anal fin ray length (2nd)	173	194	184	152–231 (188)
Caudal peduncle length	247	252	259	229–295 (261)
Caudal peduncle depth	143	145	145	132–158 (147)
Caudal fin lobe length	365	Broken	380	264–441 (358)

^aIncluding the lectotype and paralectotype of *Polynemus xanthonemus*

^bUsually 6 on each side but occasionally 5 on each side, or asymmetrically 5 and 6 or 6 and 7

(2), 82–83 mm SL; RMNH 443, 108 mm SL; UMMZ 213332 (2), 76–116 mm SL. *F. perplexa* Feltes: BMNH 1988.4.6.1 (holotype of *F. perplexa*), 148 mm SL; FMNH 97100 (1 of 25 paratypes of *F. perplexa*), 118 mm SL; PMBC 5913, 111 mm SL (see Motomura et al., 2000b); USNM 72742 (1 of 25 paratypes of *F. perplexa*), 113 mm SL; USNM 280288 (1 of 25 paratypes of *F. perplexa*), 113 mm SL. *F. sealei* (Jordan and Richardson): AMS IB 1462-IB 1463 (2), 130–147 mm SL; USNM 57844 (holotype of *Polydactylus opercularis* Seale and Bean [= holotype of

Polydactylus sealei Jordan and Richardson]), 123 mm SL. *F. similis* Feltes: AMS I. 21033-004 (3 of 43 paratypes of *F. similis*), 126–128 mm SL; FMNH 58982 (2 of 43 paratypes of *F. similis*), 112–116 mm SL; USNM 149704 (3 of 43 paratypes of *F. similis*), 72–99 mm SL; USNM 278202 (2 of 43 paratypes of *F. similis*), 62–70 mm SL; USNM 278215 (1 of 43 paratypes of *F. similis*), 83 mm SL; USNM 278242 (7 of 43 paratypes of *F. similis*), 86–104 mm SL; USNM 304495 (holotype of *F. similis*), 99 mm SL. *F. xanthonema* (Valenciennes in Cuvier and

Valenciennes): FRLM 15716, 62 mm SL; MNHN A. 3033 (lectotype and paralectotype of *Polynemus xanthonemus*), 109–110 mm SL; MUFS 2579, 118 mm SL; USNM 278199 (26), 90–110 mm SL.

Acknowledgments We are most grateful to K. Venkataraman (ZSI/MBS), P.T. Cherian, and K. Rema Devi (ZSI/SRS) for opportunities to examine the types of *Polydactylus konadaensis*, and to M.N. Venugopal and A. Chakraborty (Department of Fishery Biology, College of Fisheries, Mangalore, India) for their assistance during our visit to India. We greatly appreciate G. Duhamel, J.-C. Hureau and P. Pruvost (MNHN) for opportunities to examine the types of *Filimanus xanthonema*, W. N. Eschmeyer (CAS) for providing the original description of *P. konadaensis*, and P. Musikasinthorn (TUFIL) for providing information on ZSI. We thank the following persons and institutions for specimen loans: M. McGrouther and K. Parkinson (AMS), J. Maclaine (BMNH), M.A. Rogers and K. Swagel (FMNH), S. Kimura (FRLM), H. Ida and M. Okamoto (FSKU-P), H.K. Larson, B. Russell, G. Dally and S. Gregg (NTM), S. Bussarawit and U. Satapoomin (PMBC), M.J.P. van Oijen and J. van Egmond (RMNH), D.W. Nelson (UMMZ) and S.L. Jewett, L. Palmer, S.J. Raredon and J.T. Williams (USNM). Last, we thank Y. Motomura (Miyazaki, Japan) for her assistance and G.S. Hardy (Thames, New Zealand) who read the initial manuscript and offered helpful comments. This study was supported in part by grants awarded to the first author by the Fujiwara Natural History Foundation (Tokyo, Japan), the Sasakawa Scientific Research Grant from the Japan Science Society (Tokyo, Japan) and the Ito Founda-

tion for the Advancement of Ichthyology (Tokyo, Japan). BR is also grateful to the University Grants Commission (New Delhi, India) for financial assistance.

Literature Cited

- Feltes RM (1991) Revision of the polynemid fish genus *Filimanus*, with the description of two new species. *Copeia* 1991:302–322
- Feltes RM (1993) *Parapolynemus*, a new genus for the polynemid fish previously known as *Polynemus verekeri*. *Copeia* 1993:207–215
- Hubbs CL, Lagler KF (1958) Fishes of the Great Lakes region. *Bull Cranbrook Inst Sci* 26:1–213
- Leviton AE, Gibbs RH Jr, Heal E, Dawson CE (1985) Standards in herpetology and ichthyology: Part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia* 1985:802–832
- Mishra SS, Krishnan S (1993) *Polydactylus konadaensis* a new threadfin fish from India with a key to species of the Polynemidae of India. *Rec Zool Surv India* 92:285–291
- Motomura H, Iwatsuki Y, Kimura S, Yoshino T (2000a) Redescription of *Polydactylus macrochir* (Günther, 1867), a senior synonym of *P. sheridani* (Macleay, 1884) (Perciformes: Polynemidae). *Ichthyol Res* 47:327–333
- Motomura H, Satapoomin U, Iwatsuki Y (2000b) A new record of the threadfin, *Filimanus perplexa* Feltes, 1991, (Perciformes: Polynemidae) from the Andaman Sea, Thailand. *Phuket Mar Biol Cent Res Bull* 63:17–20