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ON THE VALIDITY OF THE SPECIES OF THE GENUS *PALLISENTIS* VAN CLEAVE, 1928 (ACANTHOCEPHALA : PALLISENTIDAE) FROM THE INDIAN SUBCONTINENT

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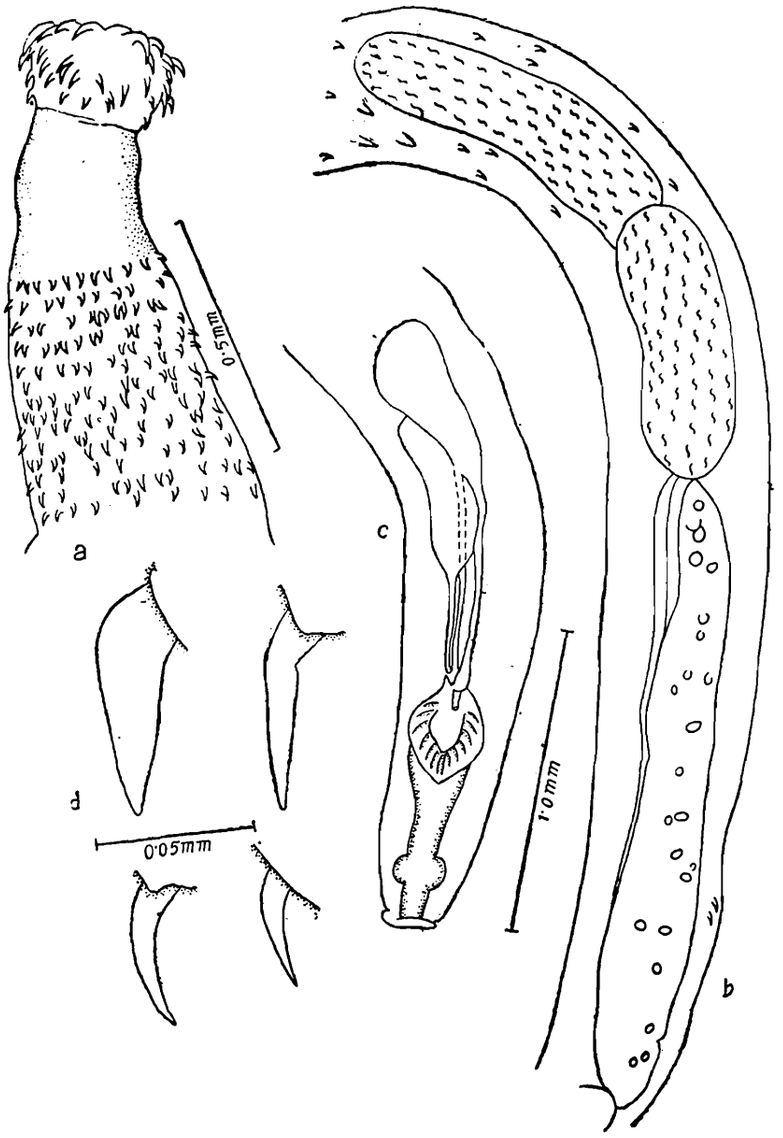
(With 3 Text-figures)

Van Cleave (1928) created the genus *Pallisentis* with *P. umbellatus* as its type species and also transferred *Echinorhynchus gaboes* McCallum, 1918, under the aforesaid genus. Thapar (1930) described *Farzandia* as a new genus with *F. ophiocephali* as its type species and shortly afterwards Bhalerao (1931) added another species, *viz. F. nagpurensis* from the same host. Baylis (1933), however, regarding *Farzandia* a direct synonym of the genus *Pallisentis*, assigned the two above mentioned species to it. Subsequently the following eight more species were added to the genus *Pallisentis*, viz. *P. nandai* Sarkar, 1953, *P. colisai* Sarkar, 1954, *P. allahabadii* Agarwal, 1958, *P. basiri* Farooqi, 1958, P. *buckleyi* Tadros, 1966, *P. guntei* Sahay, Nath & Sinha, 1967, *P. pandei* Rai, 1971 and *P. magnum* Saeed & Bilqees, 1971, mostly from ophiocephalid hosts. In the meanwhile Golvan (1959), on the basis of number of proboscis hooks in each circle, sub-divided the genus *Pallisentis* into three sub-genera, viz. *Pallisentis* (the nominal s. g.), *Neosentis* and *Farzandia*, but Tadros (1966) found this subdivision unsatisfactory as some of the species could not be properly accommodated. A careful study of the present material which comprises collection from various hosts from different parts of the country lead us to conclude that the number of proboscis hooks, size of proboscis, number of both collar and body spines, and shape and size of testes etc. are variable characters and much reliance cannot be placed on the same. Also, we have found that all the members of the genus from the above region comprise only two species, viz. *P. ophiocephali* (Thapar, 1930) and *P. colisai* Sarkar, 1954, differentiated from each other mainly by the shape of proboscis hooks. Further, in all the species of the genus the males lack the Saefftigen's pouch. It may also be noted that the present forms show much proximity to the rather inadequately described species, *P. gaboes* (McCallum, 1918) where the shape of the hooks, however, is not recorded. As such nothing definite can be said regarding their relationship for the present.

Pallisentis ophiocephali (Thapar, 1930) Baylis, 1933

(Text-fig. 1, a-d)

1930. *Farzandia ophiocephali* Thapar, *Ann. Mag. nat. Hist.*, (10) **6** : 77.
1931. *Farzandia nagpurensis* Bhalerao, *Ann. Mag. nat. Hist.*, (10), **7** : 569.
1933. *Pallisentis nagpurensis* Baylis, *Ann. Mag. nat. Hist.*, (10), **12** : 444.
1935. *Pallisentis nagpurensis* : Datta and Poddar, *Rec. Indian Mus.*, **37** : 234.
1936. *Pallisentis nagpurensis* : Subrahmanian, *Rec. Indian Mus.*, **38** : 331.



Text-fig. 1. *Pallisentis ophiocephali* (Thapar, 1930) Baylis, 1933
a. male anterior end ; b. male middle portion showing testes and cement gland ; c. male posterior end showing seminal vesicle and cement reservoir ; d. proboscis hooks (enlarged).

1937. *Pallisentis nagpurensis* : Subrahmanian, *Zool. Anz.*, **119** (3/4) : 111.
1953. *Pallisentis nandai* Sarkar, *Proc. zool. Soc. Beng.* **6** (2) : 139.
1958. *Pallisentis allahabadii* Agarwal, *Curr. Sci.*, **27** : 107.
1963. *Pallisentis nagpurensis* : Fernando and Furtado, *Z. Parasitenk.*, **23** : 151.
1968. *Pallisentis ophiocephali* : Gupta and Lata, *Res. Bull. Panjab Univ. Sci.* (N. S.), **18** : 340.

1971. *Pallisentis magnum* Saeed and Bilqees, *Pakist. J. Zool.*, **3** (2) : 221.
1972. *Pallisentis ophiocephali.* Saeed and Bilqees, *Agric. Res. Council Govt. Pakistan* : 82.
1973. *Pallisentis nagpurensis* : George and Nadakal, *Hydrobiologia*, **42** (1) : 31.
1973. *Pallisentis nandai* : Bashirullah, *Bangladesh J. Zool.*, **1** (1) : 79.
1973. *Pallisentis nagpurensis* : Bashirullah, *Bangladesh J. Zool.*, **1** (1) : 74, 79.
1976. *Pallisentis ophiocephali* : Bilqees, *Proc. Pakistan Acad. Sci.*, **13** (2) : 110.
1976. *Pallisentis magnum* : Bilqees, *Proc. Pakistan Acad. Sci.*, **13** (2) : 110.
1979. *Pallisentis nagpurensis* : Jain and Gupta, *Helminthologia*, **16** (3) : 173.
1979. *Pallisentis allahabadi* : Jain and Gupta, *Helminthologia*, **16** (3) : 174.

Material : 1 ♂ ; Z. S. I. Reg. No. WN 420/1 ; host-*Nandus nandus* ; location—intestine ; locality—Diamond harbour (W. B.) ; collector—M. Hafeezullah, 13. ii. 1977. 1 ♂ ; Z. S. I. Reg. No. WN 421/1 ; host—*Channa* sp. ; location—intestine ; locality—Kidderpore fish market (Calcutta) ; collector—M. Hafeezullah, 2. iii. 1979. 1 ♂ ; Z. S. I. Reg. No. WN 422/1 ; host—*Channa punctatus* ; location—intestine ; locality—Siliguri (W. B) ; collector—T. D. Soota, 13. vi. 1975. 1 ♂ and 1 ♀ ; Z. S. I. Reg. No. WN 423/1 ; host—*Channa punctatus* ; location—intestine ; locality—Siliguri (W. B.) ; collector—T. D. Soota. 14. vii. 1974. 2 ♂ ♂ & 4 ♀ ♀ ; Z. S. I. Reg. No. WN 424/1 ; host—*Channa* sp. ; location—intestine ; locality—Kurseong (W. B.) ; collector—T. D. Soota, 10. v. 1975. 4 ♂ ♂ & 3 ♀ ♀ ; Z.S.I. Reg. No. WN 425/1 ; host—*Channa* sp. ; location—intestine ; locality—Kurseong (W. B.) ; collector—T. D. Soota, 10. v. 1975. 1 ♀ ; Z. S. I. Reg. No. WN 426/1 ; host—*Channa* sp. location—intestine ; locality—Darjeeling (W. B.) ; collector—T. D. Soota, 22. v. 1975. 2 ♂ ♂ ; Z. S. I. Reg. No. WN 427/1 ; host—*Channa* sp. ; location—intestine ; locality—Bishnupur (W. B.) ; collector & date of collection—? 1 ♂ ; Z. S. I. Reg. No. WN 428/1 ; host—*Glossogobius giuris* ; location—intestine ; locality—Karaikal (Pondicherry) ; collector—M. Hafeezullah, 25. xi. 1975. 3 ♂ ♂ & 1 ♀ ; Z. S. I. Reg. No. WN 429/1 ; host—*Channa punctatus* ; location—intestine ; locality—Karaikal (Pondicherry) ; collector—M. Hafeezullah, 25. xi. 1975. 1 ♀ ; Z. S. I. Reg. No. WN 430/1 ; host—*Channa punctatus* ; location—intestine ; locality—Konarak (Orissa) ; collector—M. Hafeezullah, 13. xii. 1973. 1 ♀ ; Z. S. I. Reg. No. WN 431/1 ; host—*Channa gachua* ; location—intestine ; locality—Chandbeli (Orissa) ; collector—M. Hafeezullah, 22. xii. 1974. 2 ♂ ♂ ; Z. S. I. Reg. No. WN 432/1 ; host—*Channa* sp. ; location—intestine ; locality—Cochin (Kerala) ; collector—T. D. Soota ; 21. i. 1976. 3 ♀ ♀ ; Z. S. I. Reg. No. WN 433/1 ; host—*Channa* sp. ; location—intestine ; locality—Cochin (Kerala) ; collector—T. D. Soota ; 21. i 1976.

Description : Males. All measurements are in mm unless otherwise mentioned. Body 5.06-11.88×0.44-0.55 ; proboscis 0.176-0.22×0.22-0.25 ; neck 0.22-0.33×0.22-0.24 ; proboscis hooks in 4 circles of

TABLE 1 : (All measurements are in millimeters).

	*P. ophiocephali** Host : *Channa merulius* Loc. India	*P. nagpurensis* Host : *Channa striatus* Loc. Nagpur (Maharastra) Calcutta, Uttarbhag (W. B.), Rangoon (Burma)	*P. nandai** Host : *Nandus nandus* Loc. Calcutta (W. B.)	*P. allahabadi* Host : *Channa punctatus* Loc. Allahabad (U.P.)	*P. magnum* Host : *Wallago attu* Loc. Kalri Lake, Sind (Pakistan)	*Presenl specimens* Host : *Nandus nandus*, *Channa* sp. *Channa punctatus C. gachua*, and *Glossogobius giuris* Loc. Diamond Harbour, Calcutta, Siliguri, Kurseong, Darjeeling, Vishnupur (W. B), Karaikal (Pondicherry), Cochin, Konark and Chandbeli (Orissa)
Size of body	♂ 5.99 × 0.34	2.4-14 × 0.45	5.6-9 × 0.37-0.63	2.85-5.7 × 0.285-0.323	6.40-19.00 × 0.36-0.70	5.06-11.88 × 0.44-0.55
	♀ 14.3 × 0.495	2.4-19.0 × 0.56-09	6.3-10.4 × 0.35-0.56	5.79-16.34 × 0.42-0.95	6.40-40.00 × 0.36-1.10	8.03-24.86 × 0.49-0.715
Size of proboscis	♂ 0.14 × 0.22	0.2 × 0.23	0.17-0.48 × 0.19-0.32	0.1-0.288 × 0.1-0.342	0.28-0.32 × 0.16-0.20	0.176-0.22 × 0.22-0.25
	♀ 0.175 × 0.242					0.22-0.275 × 0.22-0.3
Neck	♂ 0.198 × 0.22	—	0.98 × 0.165	—	—	0.22-0.33 × 0.22-0.24
	♀ 0.308 × 0.22	—	—	—	—	0.165-0.33 × 0.22-0.27
No. of proboscis, hooks.	4 × 8 or 10	4 × 8 or 10	4 × 8 or 10	4 × 8-10	28-30	4 × 8 or 10
Length of proboscis hooks.	H_1 0.076-0.085	0.076-0.083	0.093	each hook	0.028 × 0.054	0.068-0.085
	H_2 0.068-0.076	0.063-0.07	0.08	measuring		0.068-0.073
	H_3 0.051	0.047-0.059	0.06	0.02-0.1		0.051-0.059
	H_4 0.034-0.0425	0.03-0.034	0.033	in length		0.0255-0.0425
Proboscis sheath	♂ 0.66 × 0.22	0.47-0.88 × 0.28	0.46-0.84 × 0.12-0.25	0.437-1.6 × 0.095-0.48	1.20	0.55-0.80 × 0.198-0.275
	♀ 0.935 × 0.22					0.77-0.88 × 0.165-0.22
Lemnisci	(1) 1.925	2.43 × 0.09	(1) 1.1-1.9 × 0.04	(1) 0.57-2.75 × 0.028-0.18		(1) 1.04-2.36
	(2) 2.20		(2) 0.72-1.3 × 0.04	(2) 0.418-1.805 × 0.028-0.064		(2) 0.99-2.42
No. of collar spines	♂ 11-13 × 14-16	12-14 × 20-24	13-16 × 18.20	15-18 × 8-12 15-18 × 20-25	16 × 10	13-15 × 14-24
	♀ 13-14 × 14-16					
No. of trunk spines	♂ 28-34	30-63 × 8-14	28-55 × 16-20	21-25 × 1-12 32-36 × 1-18	in anterior third	25-35 × 10-20 30-72 × 10.24
	♀ 60-65					
Testis	(1) 0.605-0.66	0.64-1.82 × 0.16-0.37	0.605 × 0.165	0.247-0.475 × 0.114-0.128	0.40-0.80 × 0.10-0.14	0.385-1.1
	(2) 0.352-0.66	0.49-1.28 × 0.17-0.36	0.55 × 0.16	0.342-0.437 × 0.128-0.133		0.33-1.04
Cement gland	0.99-1.32 × 0.132	1.15-2.65 × 0.20	0.77-1.4 × 0.14-0.22	0.323-0.57 × 0.08-0.171	0.40-1.20 × 0.12-0.14	0.55-2.09 × 0.05-0.242
No. of nuclei in cement gland	14-16 or more	15-30	23-25	8-16	——	12-30
Cement reservoir	0.44-0.495	——	0.29-0.48 × 0.12-0.21	0.228-0.456 × 0.064-0.18 with two ducts	0.40-0.80 × 0.16-0.21	0.253-0.66 × 0.132-0.33
Seminal vesicle	0.44 × 0.143	0.85 × 0.18	0.24-0.89 × 0.13-0.9	0.34-0.9 × 0.08-0.133	0.60-0.14 × 0.11-0.12	0.275-0.55 × 0.055-0.198
Egg	0.068 × 0.025	0.09-0.214 × 0.04-0.115	——	0.02-0.072 × 0.012-0.028	0.018-0.042 × 0.021-0.025	0.051-0.085 × 0.034-0.042

* Fresh measurements of material in the National collection of Z. S. I. No. W 6432-5/1 & W 3797/1.

8 or 10 each ; hooks in 1st circle 0.068-0.085, in 2nd 0.068-0.0735, in 3rd 0.051-0.06, and in 4th 0.0255-0.0425 long ; proboscis sheath 0.55-0.8× 0.198-0.275 ; collar spines in 13-15 rows with 14-24 in each ; trunk spines in 25-35 rows with 10-20 in each ; testis, anterior 0.385-1.1 and posterior 0.33-1.04 long ; cement gland 0.55-2.09×0.05-0.242 and with 12-30 nuclei ; cement reservoir 0.253-0.66×0.132-0.33 ; seminal vesicle 0.275-0.55×0.055-0.198.

Female : Body 8.03-24.86×0.475-0.715 ; proboscis 0.22-0.275×0.22-0.3 ; neck 0.165-0.33×0.22-0.27 ; proboscis hooks as in male ; proboscis sheath 0.77-0.88×0.165-0.22 ; lemnisci 1.04-2.36 and 0.99-2.42 long ; trunk spines in 30-72 rows with 10-24 in each ; eggs 0.051-0.085× 0.034-0.042.

Host : *Nandus nandus*, *Channa gachua*, *C. punctatus*, *C.* sp,, and *Glossogobius giuris*

Location : Intestine

Locality : West Bengal, Orissa, Pondicherry, and Kerala

Remarks : This species was originally described by Thapar (1930) as *Farzandia ophiocephali* from *Channa marulius*, but later transferred by Baylis (1933) under the genus *Pallisentis*. Four out of the ten species described from the Indian sbcontinent, viz. *P. allahabadii* Agrawal, 1958, *P. nagpurensis* Bhalerao, 1931, *P. nandai* Sarkar, 1954, and *P. magnum* Saeed and Bilqees, 1971, share the following characters with this valid species :

1. Shape of the proboscis.
2. Number and arrangement of proboscis hooks (4 circles of 8 or 10 each).
3. Gradual reduction in the size of the hooks in each circle (H_1 0.068-0.085 ; H_2 0.068-0.073 ; H_3 0.051-0.059 ; and H_4 0.025-0.042).
4. Stronger and stouter hooks of first circle in comparison to others (*vide* figure and type specimens *Farzandia ophiocephali* and *P. nandai* in National Collection, Z.S.I. No. W 6432-5/1 & W 3797/1).

Regarding other characters shown as differentiating the above five species from one another, examination of a number of specimens from different parts of the country indicate that these are variable. Hence, the above four species are conspecific with *P. ophiocephali* though *P. allahabadi* has been upheld by Jain and Gupta (1979). New host and locality records are also included as well as certain interesting

variations. Table 1 furnishes details of the measurements, etc. of the five concerned species alongwith the present specimens.

Pallisentis colisai Sarkar, 1954

(Text-fig. 2, a-e ; & Text-fig. 3 a-c)

1954. *Pallisenis colisai* Sarkar *Rec. Indian Mus.*, **52** : 349.

1958. *Pallisentis basiri* Farooqi, *Z. f. Parasitenkunde*, **18** : 457.

1966. *Pallisentis buckleyi* Tadros, *J. Helminth.*, **4** (1/2) : 155.

1967. *Pallisentis pandei* Rai, *Indian J. Helminth.*, **19** (1) : 39.

1967. *Pallisentis guntei* Sahay, Nath and Sinha, *Zool. Anz.*, **178** (5/6) : 348.

1971. *Pallisentis pandei* : Rai, *Agra Univ. J. Res.*, **20** (1) : 127.

Material : 1 ♀ (juv.) ; Z. S. I. Reg. No. WN 434/1 ; host-Eel ; location—intestine ; locality—Rajgir (Bihar) ; collector—T. D. Soota, 6. ix. 1973. 2 ♂♂ & 1 ♀ ; Z. S. I. Reg. No. WN 435/1 ; host—*Channa* sp. ; 3 ♀♀ ; Z. S. I. Reg. No. WN 436/1 ; host—*Channa* sp. ; 2 ♀♀ ; Z. S. I. Reg. No. WN 437/1 ; host—*Channa* sp. 1 ♀ ; Z. S. I. Reg. No. WN 438/1 ; host—*Channa* sp. ; location, locality, collector & date of collection—same as above. 2 ♀♀ ; Z. S. I. Reg. No. WN 439/1 ; host—*Channa* sp. ; location—intestine ; locality—Patna ; collector—T. D. Soota ; 19. ix. 1973. 1 ♂ ; Z. S. I. Reg. No. WN 440/1 ; host—*Channa punctatus* ; location—intestine ; locality—Ankhola (W. B.) ; collector—I. B. Datta, 7. xi. 1974.

Description : *Males*.—Body 3.24-4.18×0.27-0.28 ; proboscis 0.13×0.14 ; neck 0.22×0.11-0.13 ; proboscis hooks in 4 circles of 8 or 10 each ; hooks in 1st circle 0.076, in 2nd 0.068-0.07, in 3rd 0.03-0.034, and in 4th 0.025 long ; proboscis sheath 0.495×0.132 ; lemnisci 1.738×0.044 ; collar spines in 15-17 rows with 12-14 in each ; trunk spines in 15-17 rows with 14-15 in each ; testis, anterior 0.495×0.132, and posterior 0.405×0.132 ; cement gland 0.22-0.605 and with 12 nuclei ; cement reservoir 0.33×0.165 ; seminal vesicle 0.374×0.066.

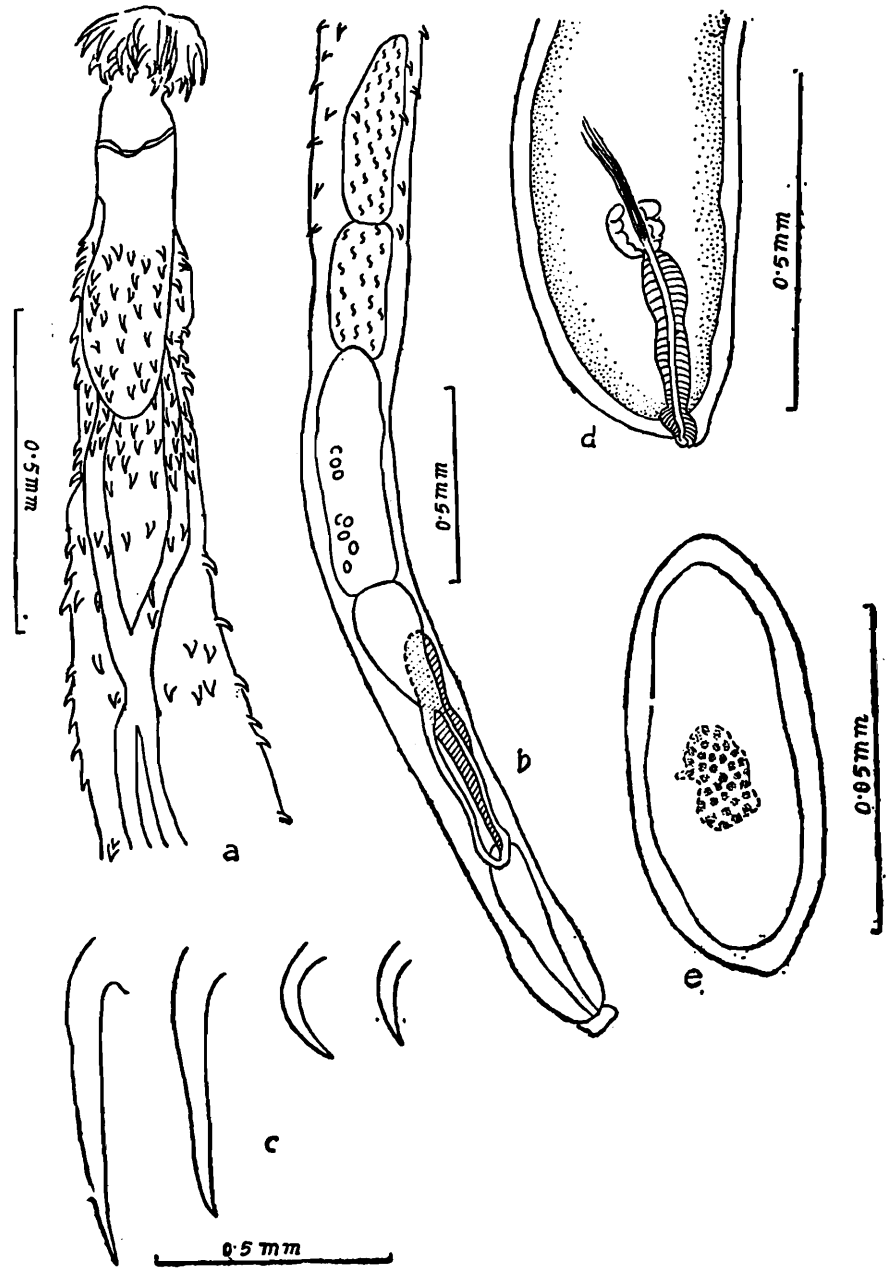
Females : Body 2.86 (in juv.) 9.35×0.605-0.715 ; proboscis 0.13-0.16 ×0.176-0.22 ; neck 0.38-0.44×0.22-0.24 ; proboscis hooks in 4 circles of 8 or 10 each ; hooks in 1st circle 0.093-0.102, in 2nd 0.076-0.093, in 3rd 0.034-0.037, and in 4th 0.025-0.03 long ; proboscis sheath 0.495-0.77×0.132-0.22 ; lemnisci 1.98×0.055 ; collar spines 15-17×12-16 ; trunk spines 33-35 rows with 15-18 in each ; eggs 0.051-0.068× 0.025-0.03.

Host : Eel, *Channa punctatus*, and *C.* sp.

Location : Intestine

Locality : West Bengal, and Bihar

Remarks : Sarkar (1954) described the new species *P. colisai* from *Colisa fasciatus*. Four of the remaining five species from the Indian subcontinent under the genus *Pallisentis*, viz. *P. basiri* Farooqi, 1958,



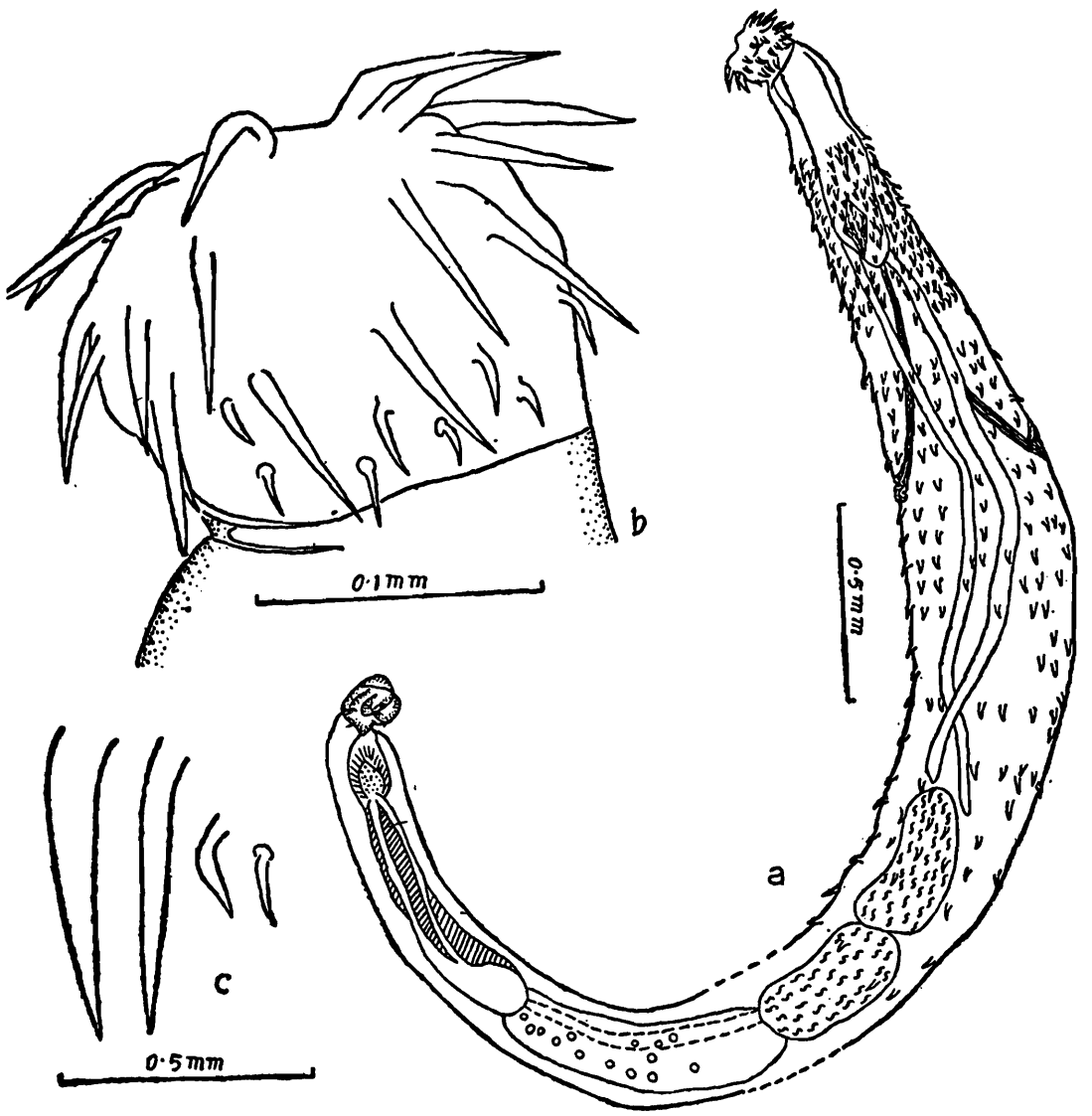
Text-fig. 2. *Pallisentis colisai* Sarkar, 1954
a. male anterior end ; b. male showing genitalia ; c. proboscis hooks (enlarged) ; d. female posterior end ; e. egg.

P. pandei Rai, 1971, *P. guntei* Sahay, Nath & Sinha, 1967, and *P. buckleyi* Tadros, 1966 [which last synonymised with *P. allahabadii* by Jain and Gupta (*op. cit.*)] share the following characters with this valid species.

1. Number and arrangement of proboscis hooks (4 circles of 8 or 10 each).
2. Much longer hooks in first two circles ; difference in hooks size between 1st and 2nd circle almost same as that in same between 3rd and 4th.

3. Cement gland small, with smaller number of nuclei ranging from 8-12.

As regards Saefftigen's pouch, Farooqi (1958) first reported its presence in the genus *Pallisentis* ; Fernando and Furtado (1963) reported it for the first time in *P. nagpurensis* alongwith the seminal vesicle but



Text-fig. 3. *Pallisentis colisai* Sarkar, 1954
(redrawn from male type)
a. entire male ; b. proboscis ; c. proboscis hooks (enlarged).

did not give its measurements ; Tadros (1966) too reported the Saefftigen's pouch in other specimens and also mistook cement duct for sperm duct in *P. basiri* ; and Jain and Gupta (1979) also reported it with definite emphasis in *P. allahabadii* in which not reported earlier. From these circumstances, therefore, the present authors cannot help concluding that no Saefftigen's pouch is present in the members of the genus *Pallisentis* so far described from the Indian subcontinent and the structure described is nothing but seminal vesicle.

TABLE 2 : (All measurements are in millimeters)

	*P. colisai** Host : *Colisa fasciatus* Loc. : Delhi	*P. basiri* Host : *Rhyncobdella aculeata* Loc. : Aligarh (U.P.)	*P. pandei* Host : *Channa punctatus* Loc. : Raya (U.P.)	*P. guntei* Host : *Lepidocephalithys guntea* Loc. : Ranchi (Bihar)	*P. buckleyi* Host : Fish (?) Loc. : Aligarh (U. P.)	*Present specimen* Host : Eel, *Channa punctatus* Loc. : Rajgir, Patna, (Bihar), Ankhola (W. B.)
Size of body	♂ 4.125 × 0.385	8.28 × 0.24	5.07-6.00 × 0.30-0.35	1.75-1.95	3.5-6.4 × 0.24-38	3.24-4.18 × 0.27-0.28
	♀ 5.4-12.9 × 0.610.62	10 × 0.04-0.05	6.1-13.24 × 0.61-0.76	4.15-4.5		2.86-9.35 × 0.605-(juv.) 0.715
Size of proboscis	♂ 0.132 × 0.154		0.14-0.16 × 0.14-0.17	0.135-0.15	0.112-0.127 × 0.159-0.163	0.13 × 0.13-0.14
	♀	1.1 × 0.3		0.17-0.19		0.13-0.16 × 0.176-0.22
Neck	♂ 0.264 × 0.165	0.27 × 0.14				0.22 × 0.11-0.13
	♀			0.33-0.35		0.38-0.44 × 0.22-0.24
No. of Proboscis hooks	4 × 10	4 × 9	4 × 10	4 × 8-10	4 × 10	4 × 8 or 10
Length of Proboscis hooks	H_1 0.076 × 0.0068	H_1 0.1	H_1 0.07-0.08	H_1 0.085	H_1 0.07-0.077	♂ H_1 0.076 × 0.0068
	H_2 0.068	H_2 0.058	H_2 0.031-0.039	H_2 0.085	H_2 0.06-0.034	H_2 0.068-0.07
	H_3 0.0306	H_3 0.03	H_3 0.02-0.031	H_3 0.03-0.045	H_3 0.02-0.028	H_3 0.03-0.034
	H_4 0.0255	H_4 0.02	H_4 0.02-0.03	H_4 0.025-0.03	H_4 0.016-0.02	H_4 0.025
						♀ H_1 0.093-0.102
						H_2 0.076-0.093
						H_3 0.034-0.037
						H_4 0.025-0.03
Proboscis sheath	♂ 0.605 × 0.11-0.165	0.4 × 0.17	0.35-0.46 × 0.13-0.15	—	0.52-0.53 × 0.125-0.154	0.495 × 0.132
	♀	1.28 × 0.45		—		0.495-0.77 × 0.132-0.22
Lemnisci	2.2 × 0.05	(1) 0.76 (2) 0.66		—	(1) 1.0-1.82 (2) 0.85-1.42	1.738-1.98 × 0.044-0.055
No. of collar spines	♂ 16 × 14-16	15 × 14	14-16 × 16	16-17	16-18 × 12-14	15-17 × 12-14
	♀ —	—		—	—	15-17 × 12-16
No. of trunk spines.	♂ 22 × 12-16	26	20-28	—	26-28 × 10-12	15-17 × 14-16
	♀ 67	—		—	—	33-35 × 14-18
Testis	(1) 0.335 × 0.165	0.95 × 0.35	0.58-0.62 × 0.13-0.15	0.2-0.3 × 0.10-0.11	0.35-0.64 × 0.15-0.18	0.495 × 0.135
	(2) 0.352 × 0.165	0.7 × 0.35	0.51-0.56 × 0.13-0.14	0.175-0.25 × 0.10-0.11	0.36-0.46 × 0.15-0.2	0.405 × 0.132
Cement gland	0.44 × 0.187	0.9 × 0.34	0.47-0.63 × 0.12-0.14	0.125-0.18	0.3-0.73 × 0.088 – 0.227	0.22-0.605 × 0.165
No. of nuclei in cemeng gland	8-15	9	8	—	12	8-12
Cement reservoir	0.20-0.42 × 0.12-0.13	1.05 × 0.18	Present but mesurement not given.	—	0.175-0.59 × 0.085-0.236	0.374 × 0.066
Seminal vesicle	0.27-0.38 × 0.11-0.13	—	0.32-0.39	0.35-0.475 × 0.075-0.09	——	0.33 × 0.165
Egg	——	0.036 × 0.021	0.08-0.10 × 0.04-0.049	——	——	0.051-0.068 × 0.025-0.03

* Fresh measurements of male only in the National collection of Z. S. I. No. W 3955/1.

Though Rai (1967), in his species, *P. pandei* recorded the presence of Saefftigen's pouch, seminal vesicle, and cement reservoir, he only included measurements of the first two structures. Jain and Gupta (*op. cit.*) too reported simultaneous presence of these three structures in a single specimen, but omitted to show Saefftigen's pouch in their figure stating that the figure was based on whole mounts where such structure could not be clearly discerned, though present. However, they gave its measurements as 0.309-0.456×0.049-0.065. Further, Rai (*op. cit.*) is also reported to have observed eggs with filaments. But, their above observations need confrmation. However, on the basis of shape and size of proboscis hooks as well as of the cement gland and the number of its nuclei, as given by Rai (*op. cit.*), the present authors are of the opinion that his species is conspecific with *P. colisai* Sarkar, 1954.

Sahay *et al.*, (1967) while inadequately describing the species *P. guntei* from *Lepidocephalichthys guntea* reported the joining of prostatic ducts with the bursa, but making no note of cement reservoir from which arise the ducts mentioned by them. They further reported a bilobed cement gland without cement reservoir and with obscure number of neclei. From these circumstances it is obvious that the authors were not able to observe cement reservoir due to the specimens being juvenile. On the basis of the shape of male genitalia as well as of the pattern of proboscis hooks, in the opinion of the present authors *P. guntei* is also conspecific with *P. colisai*. The range in measurements of present material (Table 2) almost covers those of the above 4 species.

The differentiating characters between the two valid species, viz. *P. colisai* and *P. ophiocephali* can be summed up as follows :

1. Body length in former species in both sexes shorter than in latter.
2. First two circles of proboscis hooks in former thinner and narrower than the 1st circle of the same in latter which being stouter and broader.
3. Proboscis hooks in 1st and 2nd circle in former showing almost same difference in size as in 3rd and 4th, while in latter, hooks gradually decrease in size posteriorly.
4. Sexual dimorphism in former in regard to conspicuousness of body spines more pronounced than in latter.
5. Male genitalia of former agreeing with that of latter in arrangement of organs but differ in size of cement gland and in its number of nuclei ; cement gland being smaller in former than in latter and also its number of nuclei varying from 8-12 while in latter from 12-30.

SUMMARY

The paper deals with the validity of the ten species of the acanthocephalan genus *Pallisentis* Van Cleave, 1928, from the Indian subcontinent, and accepts only *P. ophiocephali* (Thapar, 1930) and *P. colisai* Sarkar, 1954, as valid. Fresh measurements taken from original specimens of both these species are also included as well as new host and locality records.

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