

DESCRIPTION OF A NEW TREMATODE (BUCEPHALIDAE:
GASTEROSTOMATA) FROM AN INDIAN FRESH WATER FISH,
CLUPIOSOMA GARUA

S. P. SINGH *
D. P. SINHA **

ABSTRACT

The authors have described a new species of the genus *Neobucephalopsis* Dayal, 1948, collected from the small intestine of the fresh-water fish *Clupiosoma garua* at Patna (Bihar, India). This form bears a distinct identity in having a sacculated intestine with a characteristic annulated appearance, relatively more cephalad position of the ovary and short size of the cirrus sac. A key to the identification of species of *Neobucephalopsis* is given.

RESUMEN

Los autores describen una nueva especie del género *Neobucephalopsis* Dayal, 1948, colectado en el intestino delgado del pez de agua dulce *Clupiosoma garua* de Patna (Bihar, India). Esta forma se distingue por tener un intestino saculiforme con una característica apariencia anulada, por la posición del ovario, relativamente más cefálica y por la pequeña talla de la bolsa del cirro. Se presenta una clave de identificación de especies de *Neobucephalopsis*.

INTRODUCTION

In the course of a project launched four years ago to investigate the trematode fauna of the fresh water fishes of the State of Bihar (India), the authors collected two specimens of a gasterostome trematode from the small intestine of *Clupiosoma garua* at Patna. The specimens were almost of the same size and a

detailed study revealed that they represented a hitherto unknown species of the genus *Neobucephalopsis* Dayal, 1948.

The following study is based in the study of the stained whole mount of one of the specimens. All measurements are given in millimetres.

DESCRIPTION

Neobucephalopsis patnensis n.sp.

Small, linguiform, aspinose body, 3.01 long and 1.26 in maximum breadth in the region of ovary. *Rhynchus* (anterior sucker) large, subterminal, circular in

outline, 0.42×0.40 . Mouth opening immediately pre-equatorial, 1.46 from anterior end. Pharynx 0.11×0.16 . Oesophagus short and anteriorly directed. Intestine

* Department of Parasitology, Bihar Veterinary College, Patna-14, India.

** Department of Zoology, Magadh University, Bodh Gaya, Bihar, India.

0.42 long, immediately postovarian, saccular and tubular, showing characteristic annulations. Genital pore postero-ventral in front of excretory pore, which is postero-terminal.

Gonads on the same side (left) of the median line. Testes two, almost tandem, postovarian; anterior testis 0.38×0.27 , slightly larger than the posterior testis, lobed and irregular, anterior margin touching the equator; posterior testis 0.35×0.20 and with entire margin. Cirrus sac long and cylindrical, 0.61×0.18 (about 20% of body length), extends from hind end of body to the level of middle of posterior testis, and contains a small *vesicula seminalis*, a large *pars prostatica* and a short ejaculatory duct; *pars prostatica* surrounded by a pack of prostate glands; genital sinus broad.

Ovary roughly pear-shaped, 0.29×0.26 in size, and 0.88 (29%) from anterior end of body, immediately antero-lateral to the front end of intestine; Mehlis, gland complex immediately behind ovary; small but distinct *receptaculum seminis*, 0.014×0.003 in size; Vitellaria follicular with 14-16 lobed follicles on each side between the anterior sucker and ovary. Uterus arises from ootype, ascends up for a small distance cephalad to ovary, bends down to run up to a region behind the posterior testis, ascends up again as a coiled tube on the right side of the body to reach up to the middle of the anterior sucker, and then comes down as a highly convoluted tube, running medial to the cirrus sac as a metraterm to open into the genital

atrium. Eggs thin-shelled, yellowish brown, and 0.24×0.012 in size.

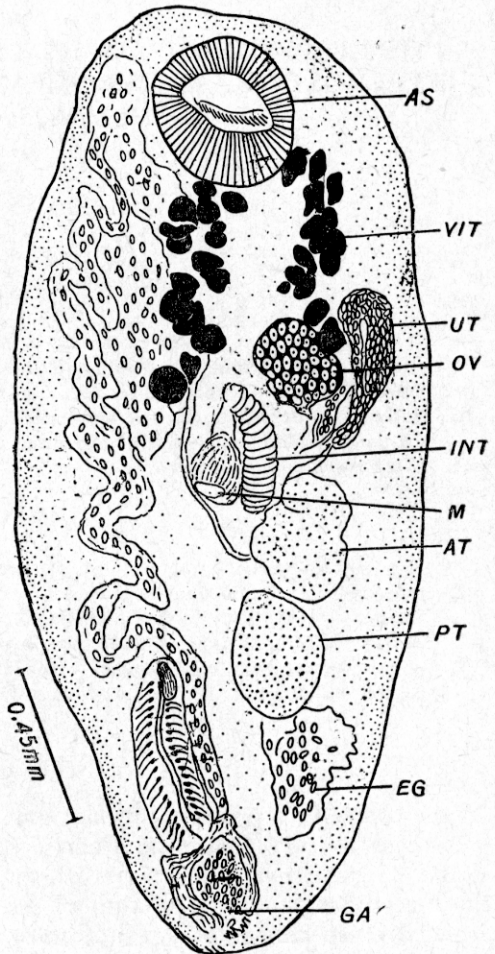


Fig. 1. *Neobucephalopsis patnensis* n. sp. (Ventral view): AS = anterior sucker, AT = anterior testis, EG = Eggs, GA = genital atrium, INT = intestine, M = mouth, OV = ovary, PT = posterior testis, UT = uterus, VIT = vitellaria.

DISCUSSION

The genus *Neobucephalopsis* was created by Dayal in 1948 to accommodate *Bucephalopsis*-like trematodes with a distinct *receptaculum seminis*. In a recent review of the Indian gasterostomes,

Srivastava and Chauhan (1972) have considered *Neobucephalopsis* as cogenetic with the genus *Bucephalopsis*. They do not consider the presence or absence of *receptaculum seminis* as an

important character, because their study has revealed that *receptaculum seminis* is present in some specimens, whereas it is not discernible in other specimens of the same series due to its thin and transparent nature and massive development of shell glands. The authors find it difficult to agree to this contention, as the failure to observe the presence of

a *receptaculum seminis* does not mean its absence, and the presence or absence of a structure never carries the same meaning. If a structure is not discernible in whole preparations, its presence can be verified in sections of the material. This may be the reason that Yamaguti (1958) has accepted *Neobucephalopsis* as a valid genus.

TABLE SHOWING THE COMPARISON OF *NEOBUCEPHALOPSIS PATNENSIS* N. SP. WITH *NEOBUCEPHALOPSIS BAGARIUS* DAYAL, 1948 AND *NEOBUCEPHALOPSIS PSEUDOTROPEI* GUPTA, 1953

Structure compared	<i>N. bagarius</i>	<i>N. pseudotropei</i>	<i>N. patnensis</i> n. sp.
Skin	spinose	spinose	aspinose
Length/breadth	4.2	2.9	2.4
% distance of mouth opening from anterior end	45.5	50.6	48.5
Anterior testis	1.18 (anterior testis slightly larger)	1.04 (testes almost equal)	1.2 (anterior testis distinctly larger)
Posterior testis			
Intestine	sac-like and lying transversely	simple sac	saccular, annulated and backwardly directed
Ovary	quite anterior to intestine	in level with pharynx	antero-lateral to front end of intestine
% distance of ovary from anterior end	30.6	47	29
Length of cirrus sac in relation to body length	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$
Anterior extent of cirrus sac	Up to the anterior testis	Hind end of posterior testis	Middle of posterior testis

Apart from the type species *Neobucephalopsis bagarius* Dayal, 1948, three other species - *N. gauhatiensis*, *N. eutropiichthis* and *N. pseudotropei* have been described by Gupta (1953) from India. Following the key given by Gupta (1953), the form under reference is comparable with *N. pseudotropei* in having an ovary smaller than testes, and the cirrus sac not extending up to the anterior testis. However, on making a strict comparison of the two species (see Table), the new form differs from *N. pseudotropei* in

having a sacculated intestine with a characteristic annulated appearance, the more anterior position of the ovary, relatively shorter size of the cirrus sac, and the extent of the uterus. If the length of the cirrus sac is not taken into strict consideration, the new form becomes comparable with *N. bagarius* Dayal, 1948. However, the length/breadth ratio, the position of anterior testis, form and disposition of the intestinal sac, and the extent of the cirrus sac (see Table) make the comparison of *N. bagarius* and the

new form difficult. Therefore, the form under discussion is considered to be a new species, and it is proposed to name it as *Neobucephalopsis patnensis*.

Host: *Clupiosoma garua*

Locality: Patna (India)

Location: small intestine

Specimens are deposited in the helminthological collections of the Department of Zoology, Magadh University, Bodh Gaya, Bihar, India.

The key given by Gupta (1953) is modified herewith to accommodate the new form.

Key to the Species of *Neobucephalopsis*

1. Testes one on either side of cirrus sac *N. gauhatiensis* Gupta, 1953.
Testes on one side of cirrus sac 2.
2. Ovary larger than testes *N. eutropiichthis* Gupta, 1953.
Ovary smaller than testes 3.
3. Ovary in level with pharynx *N. pseudotropei* Gupta, 1953.
Ovary anterior to intestine 4.
4. Cirrus sac extending up to anterior testis and about $\frac{1}{3}$ of the body length *N. bagarius* Dayal, 1948.
Cirrus sac extending up to posterior testis and about $\frac{1}{5}$ of the body length *N. patnensis* n. sp.

LITERATURE

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