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The status of *Eucreadium sinhai* Gautam, Singh and Singh (2012) - a critical review

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Abstract :*Eucreadium sinhai* (Trematoda) recovered from the intestine of *Clarias batrachus* was described by Gautam *et.al.* (2012)[1]. Unfortunately its placement under the genus *Eucreadium* seems to be wrong as it shows the –

i. Presence of body spines only on the anterior part of body,
ii. Vitellaria scattered in the lateral field of body extending from behind ovary to the posterior end of body
iii. Testes tandem, oval post equatorial, are not the characters of the genus *Eucreadium* [Ref. synopsis of digenetic trematodes by Yamaguti (1971)[2]]

The above paper has a number of other lacunae. The present authors have gone into the details & have reasons to place the above trematode under the genus *Allocreadium* Looss, 1902[3] Stossich, 1903[4] and or to place the said species under enquiry.

Key words :*Eucreadium sinhai*, review

INTRODUCTION

Eucreadium sinhai a trematode from the intestine of *Clarias batrachus* has been reported from Tirhut division of Bihar. The placement of the trematode under the genus *Eucreadium* [*Opecoelidae*] Dayal (1950)[5] seems to be an error. The paper has a number of lacunae also.

A comparative chart of three genera viz. *Orientocreadium* Tubangui (1931)[6] belonging to family *Allocreadidae* (Looss, 1902[3]; Stossich, 1903[4]; *Allocreadium* (Looss, 1902[3]; Stossich, 1903[4]) and *Eucreadium* Dayal, 1950[5] (*Opecoelidae* Ozaki, 1925[7]; *Plagioporinae* Yamaguti , 1971[2] is annexed in which the generic characters have been depicted. This chart is according to Synopsis of digenetic trematodes by Yamaguti (1971)[2] .

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MATERIALS & METHODS

Original papers have been consulted.

OBSERVATION & DISCUSSION

Shortcomings of the paper (BIOSPECTRA 7(3) : 201; pp 57-60.

i. In camera lucida drawing, no scale has been provided,
ii. Post acetabular pretesticular ovary has been described as submedian but in the said drawing it seems to be median,
iii. No receptaculum seminis, Laurer's canal and excretory vesicle have been shown in the diagram but have been described in text.
iv. Vitellaria have been shown to be scattered in the lateral field of body extending from behind ovary to

posterior end contrary to the generic diagnosis where vitellaria extend from the level of pharynx to the posterior extremity, confluent in post testicular area.

v. Testes are tandem, oval post equatorial contrary to the generic diagnosis where testes are lobed directly tandem post-equatorial.

vi. Uterine coils extend both in pre-testicular and post testicular area in *E.sinhai* contrary to the generic diagnosis where uterus has been shown to be confined to pre-testicular area.

vii. Presence of minute spines have been mentioned in the text of *E.sinhai* contrary to generic diagnosis where body has been shown to be 'unarmed'.

In the text of *Eucreadium sinhai*, the authors have mentioned the names of Sinha and Singh (1977), Looss (1900) but in the reference these names do not appear. Not only this, the authors have also mentioned (in the reference part) the names of Bhalerao (1936), Chatterjee (1933), Gupta and Verma (2012), Gupta (1953), Jaiswal (1957), Lal (1979) but these do not appear in the text. These are irrelevant references.

Judging the placement of *Eucreadium sinhai* Gautam *et.al.* (2012)[1]:

In *E.sinhai* vesicula seminalis externa seems to be absent hence it cannot be placed under the genus *Orientocreadium.*

The said trematode cannot be placed under the genus *Eucreadium* as well because it does not have (1) lobed testes neither its shows (2) extension of vitellaria in lateral fields from the level of pharynx to posterior extremity, confluent in post-testicular area.

The said fluke *E.sinhai* (?) falls under the genus *Allocreadium* because of following characters:

(a) Acetabulum in anterior half of body, (b) vitellaria confined to hind body, (c) vesicula seminalis externa absent (d) genital pore close to intestinal bifurcation (e) testes towards middle of hind body (f) cirrus pouch (not completely occupied by seminal vesicle) is not very long not reaching as far back of acetabulum, eggs are not filamented (vide key to the genera of *Allocrediinae* Looss (1902)[2] on page 98, 99* 100 of Systema Helminthum Yamaguti (1958)[7]. Even if the key to the genera of *Allocrediinae* from fishes (vide synopsis of digenetic trematodes Yamaguti (1971)[2] page 132 is followed, then *E.sinhai* falls under the genus *Allocredium* due to the following characters:

(i) vitellaria confined to hind body, oral sucker is without an appendage & are less extensive.

In the above key to the said sub-family *Allocreadinae*, pre pharynx has been shown to be present although in the generic characters nothing has been mentioned regarding this parameter. That is the reason, presence of prepharynx has been shown to be present in the comparative chart annexed. Prepharynx has been shown to be present in *Allocreadium guptai* Kakaji (1969)[8].

Key to the subgenera of *Allocreadium* (Synopsis of digenetic trematodes Yamaguti (1971)[2] page 133, indicates that when "uterus is confined to region anterior to fore testis vitellaria are confined to hind body & cirrus pouch anterodorsal to acetabulum" then the species should fall in the subgenus *Allocreadium*.

On the basis of the above arguments the present authors have two options : (i) transfer *Eucreadium sinhai* in the genus *Allocreadium* or (ii) to place the species *Allocreadium sinhai* "as species under enquiry." The authors have choosen the 2nd option, with a suggestion to the authors of *E.sinhai* to restudy the species in question.

Further, the authors advocate that future workers or the authors of *E.sinhai* should provide following details : Nature of (i) Vesicula seminalis (whether external seminal vesicle is present) (ii) Eggs – (whether filamented or not) (iii) Extension of tubular excretory vesicle (iv) commencement of vitellarial follicle (from behind acetabulum or from behind the level of ovary). (v) Whether or not body spines are present or it is an observational mistake (it is to be noted that in the genera *Allocreadium & Eucreadium* body is unarmed, only in *Orientocreadium* body spines are present and vesicula seminalis externa is present but since the latter are not present, *E.sinhai*? cannot be placed with *Orientocreadium*.

Comparison between Genera *Orientocreadium* Tubangui (1931); *Allocreadium* Looss (1902); Stossich, 1903 and *Eucreadium* Dayal (1950) – generic characters as laid down in systema Helminthum by Yamaguti (1971)

Characters	*Orientocreadium* (Allocreadidae) Looss, 1902; Stossich 1903	*Allocreadium* (Allocreadidae) Looss, 1902; Stossich, 1903	*Eucreadium* (Opecoelidae) Ozaki, 1925; *Plagioporinae* Yamaguti, 1971.
1. Body	Elongate, small spinulate	Elongate, usually unarmed with blunt-pointed extremities.	Elongate, small unarmed
2. Oral sucker	Simple, subterminal	Subterminal, well developed	Large sub-terminal
3. Pre-pharynx	Present	Not mentioned/ present in sub-family '*Allocreadiinae*	Present
4. Pharynx	Comparatively large	Well developed	Strongly muscular
5. Oesophagus	Short	Variable in length	Rather short bifurcating about midway between pharynx & acetabulum
6. Caeca	Terminating at posterior extremity	Long reaching to posterior extremity	Reach posterior extremity
7. Acetabulum	Comparatively small, 1/3 or more from anterior extremity, rarely equatorial	Simple in anterior half of body	Large prominent pre-equatorial
8. Testes	Median tandem diagonal entire or lobate in posterior half of body	Tandem or diagonal towards middle of hind body	Lobed, directly tandem post equatorial
9. Cirrus pouch	Clavate enclosing internal seminal vesicle, prostatic complex & cirrus, may or may not extend posterior to accetabulum *External seminal vesicle* present	Well developed containing winding seminal vesicle, prostatic complex & cirrus, anterodorsal to acetabulum. No external seminal vesicle	Between caceal arch and acetabulum, encloses saccular seminal vesicle, prostatic complex & muscular cirrus
10. Genital pore	Median immediately pre acetabular	Usually close to intestinal bifurcation sometimes just pre-acetabular	Submedian, just preacetabular
11. Ovary	Median or close to median line between acetabulum & anterior testis	Sub median between acetabulum and anterior testis	Lobed, submedian between acetabulum and anterior testis
12. Receptaculum Seminis & Laurer's canal	?	Present	Present
13. Vitellaria	In lateral fields of hind body usually reaching to posterior extremity	In hind body but may extend a little in fore body occasionally	Extend in lateral field from level of pharynx to posterior extremity, confluent in post testicular area.
14. Uterine coils	Extending as far as or to near posterior extremity over reaching caeca laterally, metraterm well developed	Between anterior testis and acetabulum	Confined to pre-testicular area
15. Excretory vesicle	Tubular reaching to posterior testis with short arms	Tubular, short reaching to post testis	Tubular reaching to posterior end of fore testis
16. Eggs	Small numerous	?	?
Parasites of	Fresh water fishes, occasionally reptiles	Digestive tracts of fishes	Intestine of fishes

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Note: Irrelevant references in point VII have been ignored.

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