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ON THE NEMATODE FAMILY CAMALLANIDAE (RAILLIET AND HENRY, 1915) AND ITS CLASSIFICATION

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RESUMEN

La familia Camallanidae Railliet y Henry, 1915, ha gozado de estabilidad desde que fue creada mientras que el género *Camallanus* fue revisado concienzudamente por, Yeh en 1960. Los autores hacen hincapié en la validez del género *Neocamallanus* Ali, 1956, al cual Yeh, en 1960 consideró inaceptable. Los autores enmiendan también la subfamilia Camallaninae Yeh, 1960, a la luz del trabajo de Sinha y Sahay, 1966, quienes crearon *Neozeylanema* como género nuevo.

ABSTRACT

The family Camallanidae Railliet and Henry, 1915, has enjoyed a stability since it was created and the genus *Camallanus* was reviewed very thoroughly by Yeh, 1960. The authors have emphasized the validity of the genus *Neocamallanus* Ali, 1956, which Yeh, 1960, considered unsatisfactory. The authors have also amnded the sub-family Camallaninae Yeh, 1960, in the light of the work of Sinha and Sahay, 1966, who have created *Neo-Zeylanema-a new genus.*

INTRODUCTION

According to Yorke and Maplestone (1926) the genus *Camallanus* Railliet and Henry, 1915 was one of the genera of the family Camallanidae. The other genera being *Camallanides*. Baylis and Daubney, 1922; *Paracamallanus* (Baylis, 1923) Yorke and Maplestone, 1926 and *Procamallanus* Baylis, 1923.

Baylis (1939), however, mentions in his book only three genera namely *Procamallanus,* characterized by entire buccal capsule; *Camallanus,* characterized by a pair of tridents situated dorsally and ventrally to the buccal valves and *Camallanides,* in which the trident has been replaced by a simple rod.

Chakravarty, Majumdar and Sain (1960) created *Neocamallanus heteropnuestei* n. g., n. sp. and emended the family Camallanidae. But when Dr. Judith M. Humphrey of the Beltsville parasitological laboratory, Maryland, U.S.A., informed them the preoccupation of the name of the genus *Neocamallanus* founded by Ali, 1956, a new name was proposed in 1963 for the same as *Indocamallanus heteropnuestei.* Chakravarty *et al.,* also seems to have created two new subfamilies, namely, 1) Camallaninae, characterized by paired buccal valves, chitinous tridents. Male with two spicules with or without accesory piece. This sub-family included genera like *Camallanides, Paracamallanus* and *Camallanus.* 2) Neocamallaninae n. subf., characterized by continuous buccal capsule, tridents and chitinous pharynx behind the buccal capsule, absent;

male with one or two spicules and with or without accessory piece. This sub-family included genera like *Neocamallanus* and *Procamallanus*. It seems that the authors forgoth to change the name of the subfamily Neocamallaninae.

Yeh Liang Sheng (1960) has made an extensive study of the family Camallanidae and has divided this family into two new subfamilies, Procamallaninae with the genera *Procamallanus* Baylis, 1923 and *Spirocamallanus* Olsen, 1952, and Camallaninae n. sf. with the genera *Camallanus* Railliet and Henry, 1915, *Camallanides* Baylis and Daubney 1932, *Paracamallanus* Yorke and Maplestone, 1926, *Zeylanema* Yeh, 1960, *Piscilania* Yeh, 1960 and *Serpinema,* Yeh, 1960. It seems that the new sub-family Camellaninae of Chakravarty was already existing and that Yeh created the same.

Yeh considered spicules to be of less systematic importance due to the weak and very light sclerotization. He writes: "Some times they are missing or so very weakly sclerotized in some that they are heardly discernible. The characters of the buccal capsule in the family Camallanidae has a special significance due to heavy sclerotization, consistency, and non-variability with a slow rate of evolution and hence this must be taken as a fundamental diagnostic feature of a particular genus".

Sinha and Sahay, 1966, considered *Indocamallanus heteropnuestei* as a species of *Procamallanus* (Monospiculus). Latter in the same year Sinha and Sahay added *Procamallanus* (*Monospiculus*) *devendri* n. sp. as the third known species in monospiculate forms.

Sinha and Sahay agreed with the view of Ali (1956, 1960) who divided the genus *Procamallanus* into four subgenera depending on the presence or absence and number of spicules, but did not agree with him in accepting *Procamallanides* with spiral thickenings in the buccal capsule belonging to the genus *Procamallanus*. *Olsen* (1952) created the genus *Spirocamallanus* to accomodate such forms and this view has been maintained by Yeh Liang-Sheng (1960) and Sinha and Sahay (1966).

It is on this account that Sahay (1966) created a new subgenus *Spirocamallanus* which was added to the already existing list of four subgenera created by Ali (1960). *Procamallanus parasiluri* Fujita, 1927, formerly kept in the subgenus *Monospiculus* by Ali (1960), *P. mehrii* Agrawal (1930) and *P. planarotus* Kulkarni (1935), the last two of which were referred to the subgenus *Iso-spiculus* by Ali (1956) and those forms formerly placed in the subgenus *Procamallanus* with spiral thickening in their buccal capsule, have been transferred in this new subgenus. *Spirocamallanus chauhani* (Sahay, 1966) has been referred to this new subgenus. *P.* (*Monospiculus*) *devendri* n. sp. Sinha and Sahay, 1966 and *P.* (*Monospiculus*) *heteropnuestei* Chakravarty *et al.*, 1961, have been kept in the subgenus *Monospiculus* along with *Procamallanus slomei* Southwell and Krishner, 1937.

Yeh (1960) says: "Ali (1957) erected a new genus *Neocamallanus* for *Camallanides* without tridents. This is an unsatisfactory division. In *Zeylanema pearsei* n. sp., there are no tridents, in *Z. kulasiri n.* sp., there are vestigial tridents, while in *Z. fernandoi* n. sp., and *Z. anabantis,* there are well developed tridents".

The authors, however, do not agree with Yeh (1960). They think *"tridents"* to be of great taxonomic importance. Besides in *Neocamallanus singhi* Ali, 1960, the longitudinal thickenings in the buccal capsule are not toothed as is met with *Zeylanema.* This point should not be confused. Therefore, *Neocamallanus singhi* is a valid genus and species.

Chakravarty and Majumdar (1960) considered tridents an important character in the taxonomy of the Camallanids. Sahay (1966) and Sinha (1966) also, are in accord with their view. This view, however, has not been given proper weight by Yeh (1960). He says: "Tridents are seemingly solid and useful in taxonomy but have their pros and cons. As mentioned in another paper, tridents may be absent in one species, poorly developed in another and well developed in a third species where as all the other characters by every criterion show that the species should be placed in the same

genus. A poorly developed trident, or a mere knob, may be recovered by one worker as "tridents absent" where as another worker may consider it as "tridents present". Tridents are stable in species, but rate high in evolution and should not be used for generic determination".

Sinha and Sahay (1966) keeping tridents in view have recently created *Neozeylanema bahli* n. gen., n. sp., recovered from *Anabas testudineus* in which they found quadridents instead of tridents. The authors thus have amended the classification of the subfamily Camallaninae given by Yeh (1960) as follows:

Subfamily CAMALLANINAE Yeh, 1960

Definition: Camallanidae: Mouth opening slit like buccal capsule with lateral bivalves, tridents present or absent occasionally quadridents.

Key to the genera

1. Buccal valves followed by a large chitinous pharynx, tridents present ..... *Procamallanus* Yorke and Maplestone, 1926

   Buccal valves without chitinous pharynx or reduced 2

2. Buccal valves with deep lateral groove, tridents replaced by monodents, vulva situated on a tubular appendage ..... *Camallanides* Baylis and Daubney, 1922

   Buccal valve without lateral groove 3

3. Buccal capsule with longitudinal thickenings modified into teeth .. 4

   Buccal capsule with longitudinal thickenings unarmed 5

4. With or without tridents .... *Zeylanema* Yeh, 1960

   with quadridents ..... *Neozeylanema* Sinha and Sahay, 1966

5. Buccal capsule with short anterior thickenings and posterior spines .. .. *Piscilania* Yeh, 1960

   Buccal capsule with smooth continuous thickenings 6

6. Buccal thickenings broken laterally. into dorsal and ventral groups .... *Serpinema* Yeh, 1960

   Buccal thickenings in one lateral group 7

7. Without tridents ..... *Neocamallanus* Ali, 1956

   with tridents ..... *Camallanus* Railliet and Henry 1915

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