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STUDIES ON THE HISTORY AND CLASSIFICATION OF THE FAMILY EUCOTYLIDAE SKRJABIN,1924 WITH DESCRIPTION OF *TANASIA (T.) ORIENTALIS* SP. NOV. FROM CROW PHEASANT

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ABSTRACT : *Tanaisia (T.) orientalis* a Monostomid parasite of the urinary tract of *Centropus sinensis* is described as a new species from Allahabad (U.P.), which is a new host record. Although the general morphology of the monostome collected by the author resemble *Tanaisia (Tanaisia) fedtschenkoi* (Skrjabin,1924); *T(T.) elliptica* (Nezlobinski,1926); *T(T.) pelidnae* (Cheatum,1938) and *T(T.) inopina* (Freitas,1951) Pinto *et al.* (2005) but there are marked variations in shape and position of testes and ovary, extent and distribution of vitellaria, size of ova and other anatomical features which have been commented upon wherever necessary. The new species differs from *T.cameroni* and *T.pritchardae* (Gupta and Saxena,1987) described from India, principally in shape of gonads, absence of ventral sucker, extent and distribution of vitelline follicles and size of ova. The history and classification of the family and genus has been thoroughly discussed. A table showing comparative dimensions recorded by different authors of certain closely resembling species along with the author's collection is given.

Key words : *Tanaisia (T.) orientalis, Digenea, Eucotylidae, Centropus sinensis, India.*

INTRODUCTION

Family Eucotylidae Skrajabin,1924 : The family *Eucotylidae* was described by Skrjabin in 1924 to include the genera *Eucotyle* (Cohn,1904), *Tamerlania* (Skrjabin,1924) and *Tanaisia* (Skrjabin,1924). Nezlobinski (1926) proposed two more genera, *Ohridia* and *Lepidopteria* followed by the addition of genus *Prohystera* proposed by Korkhous (1930) for the parasites inhabiting urinary tract of birds. The family was characterized by : Medium sized monostomes with annular muscular thickness at the anterior end of body, subterminal oral opening, presence of pharynx; simple intestinal caeca extending posteriorly up to almost caudal end and not united. Oesophagus present or absent. Genital opening located behind caecal bifurcation. Cirrus sac absent. Seminal vesicle and ovary anterior to testes; testes may be extracaecal or intracaecal, but are diagonally placed or at the same level in the second third of body length. Vitellaria located laterally to caeca a little behind anterior body end or at the level of testes but terminating at the same level posteriorly. Uterus forms crisscross coils in descending order.

Issaitschikoff (1926) added more diagnostic features to the genus *Tanaisia*, the most important being the union of intestinal crura at the posterior end. Cheatum (1938) added one more diagnostic character to the genus *Tanaisia*, a parasite in urinary tract of birds with position of testes as tandem also. He accordingly amended the generic diagnosis to : Eucotylidae, medium sized monostomes with attenuated bodies; head region not separated from remainder of body by muscular collar; oesophagus present; testes with their margins strongly lobed, confined between crura and in the middle third of body,disposed oblique or in tandem; ovary anterior to testes with entire or strongly lobed margins; vitellaria marginal and extracaecal located in the middle third of body; intestinal crura united in hind part of body. The classification of the family Eucotylidae has attracted the attention of several workers and has been a topic of discussion from time to time. Skrjabin (1924, 1947), Byrd & Denton (1950), Freitas (1951,1959), Yamaguti (1958a,1971), Odening (1963,1964), Kanev *et al.* (2002) and others presented several different versions of classification of the family.

Byrd and Denton (1950) reviewed the species of *Tanaisia* & *Tamerlania* and reported differential characters of the two genera to be common to both. They considered the genera to be cogeneric and defined *Tanaisia* as the type of genus by page priority. They further reduced the fourteen described species to four, which are cosmopolitan in distribution. Teixeira de Freitas (1951) in Brazil reviewed Eucotylidae and endorsed the views of Byrd and Denton regarding the synonymy of *Tanaisia* and *Tamerlania* and accordingly placed all the genera in single genus *Tanaisia.* He, however, did not synonymise most of the species of *Tanaisia* as Byrd and Denton but recognized eleven earlier described species as valid and described thirteen new species.

Yamaguti (1958) followed Byrd and Denton (1950) and Freitas (1951,1959) in synonymising the genera of Tanaisiinae Freitas (1951), though he reduced the status of the three formerly known genera *Tamerlania, Ohridia* and *Lepidopteria* to the sub generic rank of *Tanaisia*. He maintained the species described by Freitas and rejected the contention of Byrd and Denton that there were only four cosmopolitan species. Freitas (1951) described the two subfamilies Eucotylinae and Tanaisiinae each with a single genus *Eucotyle* (Cohn,1904) and *Tanaisia* (Skrjabin,1924). Yamaguti (1958) in his "Systema helminthum" referred to these subfamilies as new without knowing the earlier contributions of Freitas who, apart from creating the two

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subfamilies had not accepted the validity of the four sub-genera viz., *Tanaisia* (Skrjabin,1924), *Ohridia* (Nezlobinski,1926) *Lepidopteria* (Nezlobinski,1926) and *Tamerlania* (Skrjabin,1924) in his "Revision of the family Eucotylidae." However, Yamaguti (1958) retained and differentiated them on the basis of shape and position of gonads. Under the subgenus *Tanaisia*, Yamaguti (1958) mentioned only six species : *T.(Tanaisia) fedtschenkoi* (Skrjabin,1924); *T.(Tanaisia) dubia* (Freitas,1951); *T.(Tanaisia) elliptica* (Nezlobinski,1926); *T.(Tanaisia) longivitellata* (Strom,1947); *T.(Tanaisia) macrorchis* (Yamaguti et Asada,1942) and *T.(Tanaisia) pelidnae* (Cheatum,1938).

Odening (1963) while describing new species accepted only the validity of the genus *Tanaisia* within the subfamily Tanaisiinae. He supported the views of Byrd and Denton, Freitas and Yamaguti with regard to the homogeneity of the genus *Tanaisia* but further subdivided the genus into three "poorly different" subgenera, *viz., Tanaisia* (Skrjabin,1924), *Tamerlania* (Skrjabin,1924) and *Paratanaisia* (Freitas,1951). He accepted eighteen species based on the description of cuticular spines and regarded fourteen other species as species inquirende. He also considered Eucotylidae as homogeneous among other things owing to the occurrence of characteristic comb shaped cuticular scales similar to those of representatives of Tanaisiinae. "The occurrence of morphologically identical adults in different zoogeographical regions is not regarded as convincing for the presence of cosmopolitan species, because in this case changes of specificity for the mollusks serving as first intermediate host are not taken into consideration." (Odening,1963). While further discussing the systematics of Eucotylid species, he has emphasized upon the knowledge of the armament of the cuticula which takes a prominent shape. For characterizing a species, he opines that one must prove the presence of comblike scales as a diagnostic feature for differentiation (as is the most frequent case) or of simple spines (seldom) and describe these characteristics for each species.

According to Odening (1963) the subgenus *Tanaisia* contains twelve species which include nine species as species inquirende and accepted the validity of only three species:

1. *Tanaisia (Tanaisia) fedtschenkoi* Skrjabin,1924
2. *Tanaisia (T.) dubia* Freitas,1951.
3. *Tanaisia (T.) macrorchis* Yamaguti et Asada,1942.
4. *T.(T.) atra* Nezlobinski,1926, sp. inqu. (syn. *T.longivitellata* Strom,1947; Bychovskaja-Pavlovskaja,1953 and Sulostowska, 1960.)
5. *T.(T.) byrdentoni* Freitas,1951, sp. inqu. (syn. *T.atra* by Byrd & Denton,1950 and Lumsden & Zischeke,1963).
6. *T.(T.) elliptica* Nezlobinski,1926, sp. inqu. (Possibility of syn. of *T.fedtschenkoi*)
7. *T.(T.) garcioza* Nezlobinski,1926, sp. inqu. (Possibility of syn. of *T.atra*).
8. *T.(T.) integerriorcha* Saidov,1954, sp. inqu.
9. *T.(T.) panuri* (Nez.,1926), sp. inqu. (possibility of syn. of *T.fedtschenkoi*).
10. *T.(T.) pelidnae* Cheatum,1938, sp. inqu.
11. *T. (T.) plegadis* (Nez.,1926), sp. inqu. (possibility of syn. of *T.fedtschenkoi*).
12. *T. (T.) serrata* Szidat,1961, sp. inqu.

Odening (1964) while reviewing *Tanaisia* created new groups to accommodate the various species of this subgenus thus :

1. *T.fedtschenkoi* Group (Focus : Lara-Limicolae) : *T.f.fedtschenkoi* (=*T.elliptica*), Palaerctic; *T.f.pelidnae* subsp. inqu., Nearctic; *T.f.meridionalis* n subsp., India and *T.valida*, S.America.
2. *T.atra* Group (Focus : Ralliformes): *T.atra* (=*T.longivitellata*) Palaerctic; *T.byrdentoni* sp. inqu., Nearctic and *T.serrata* sp.inqu., S.America.
3. *T.panuri* sp.inqu. Group; Europe (Passeriformes).
4. Group from Laro-Limicolae with extraordinary smooth surfaced testes : *T.macrorchis* sp.inqu., Manchuria; *T.integerriocha* sp.inqu., USSR and *T.dubia* sp. inqu. S.America.

While further studying the family Eucotylidae, Brooks *et al.* (1989) considered Renicolidae and Eucotylidae as sister groups of Plagiorchiata. Tkach *et al.* (2001) while working on the molecular phylogeny of the suborder Plagiorchiata and the relationship between Eucotylidae and Renicolidae commented that "The sister group relationship of the Eucotylidae with Renicolidae deserve more detailed consideration, because the phylogenetic affinities and systematic position of Eucotylidae have always been uncertain. It should be mentioned that both Renicolids and Eucolids are parasites of bird kidneys and share many morphological features; thus their divergence from a common ancestor is conceivable". Yamaguti (1971) had also earlier described that Tanaisiinae is more morphologically similar to the Renicolidae than with the Eucotylinae due to absence of cirrus sac (present in Eucotylinae) and presence of seminal receptacle (absent in Eucotylinae). This led Tkach *et al.* (2001) to conclude that "It would be interesting to add the representatives of the Eucotylinae into analysis to test the monophyly of the Eucotylidae and clarify their relationship with the Renicolidae".

Kanev *et al.* (2002) while reviewing the family Eucotylidae contributred a lot to our knowledge of this group. While accepting the two subfamilies Eucotylinae (Skrjabin,1924) and Tanaisiinae (Freitas,1951) they synonymised certain genera, accepted the validity of only four genera out of seven recorded and classified them under the two subfamilies. A short history and diagnostic features of the subfamilies and their genera reviewed by Kanev *et al.* (2002) is furnished below :

Keys to subfamilies :

I. Subfamily : Tanaisiinae (Freitas,1951) Body without annular cervical thickening; caeca form cyclocoel posteriorly; testes intercaecal; cirrus sac absent.

Genus 1 -*Tanaisia* : Skrjabin (1924) reported the occurance of *T.fedtschenkoi* in the urinary tubules of the kidneys of various birds from the then Turkestan with *T.fedtschenkoi* Skrjabin (1924) as type species with intercaecal, diagonal and deeply lobed testes and anterior extremity of the body not delimited from the rest of the body by an annular muscular thickening. Freitas (1951) erected the subfamily Tanaisiinae for this genus.

II. Subfamily : Eucotylinae Skrjabin,1924 (Syn. *Eucotylinae* Freitas,1951; Eucotylinae Yamaguti,1958) : Body with annular cervical thickening in the form of cone or triangle; caeca not forming cyclocoel; testes extracaecal, may overlap caeca; cirrus sac present.

Genus 1-*Eucotyle* : It was established by Cohn in 1904 for the adult worms found in the kidneys and urinary tubules of birds in Europe. The type species *E.nephritica* (Mehlis in Creplin,1846) was first reported in Germany and described as *Monostomum nephriticum*. The features included anterior extremity delimited from the main body by an annular muscular thickening in the form of a cone or triangle; extracaecal testes and pretesticular vitelline follicles. Kanev *et al.* (2002) observed that adults with two different morphological characters have been described under the similar name *Eucotyle*. Whereas in one form the testes are pre-equatorial and vitellaria distributed in pre and post testicular regions which have been identified as *E.nephritica, E.cohni* (Skrjabin,1924), *E.hassali* (Price,1930) and *E.popovi* (Skrjabin & Evranova,1942). The second form is differentiated in equatorial position of testes with short vitelline fields present in pre-testicular region only. These diagnostic features observed in the adult parasites from Europe, Asia and North America have been identified and described as *E.zakharovi* (Skrjabin,1920), *E.wehri* (Price,1930) and *E.warreni* (Schell,1967). Kanev *et al.*, therefore concluded that due to significant morphological differences, the latter specimens do not fit in the genus *Eucotyle* (sensu stricto) and included them in a new genus, *Neoeucotyle* as *N.zakharovi* (Skrjabin,1920) n.comb.(type species), *N.wehri* (Price,1930) n.comb. and *N.warreni* (Schell,1967) n.comb.

Genus 2-*Paratanaisia* : Created by Freitas (1959) for certain species of *Tanaisia* and *Tamerlania* (Skrjabin,1924) which had vitelline follicles extending both anteriorly and posteriorly up to ovary. The parasites were first recorded from Brazil in domestic pigeons and chickens and named *Tamerlania bargai* by Santos (1934). Similar worms were also recorded in the kidneys of *Cryptorellus bargai* and *Ramphastos todo* in Brazil which Freitas (1951) identified as *Tanaisia robusta* and *T.confusa* respectively. However, Kanev *et al.* (2002) recognised Paratanaisia as a valid genus based on wider vitelline fields and accordingly transferred *Tanaisia domestica* (Nasir and Diatz,1972) and *T.ectorchis* (Fischthal,1975) to *Paratanaisia domestica* (Nasir and Diatz,1972) n.comb. and *P.ectorchis* (Fishthal,1975) n.comb.

Genus 3-*Tamerlania* : It was described by Skrjabin (1924) from the kidneys of birds in Turkestan with *T.zarudnyi* Skrjabin (1924) as type species. The type species differed from *Tanaisia* in juxstaposed testes which are entire, symmetrical and preequatorial besides presence of a ventral sucker. Yamaguti(1958a,1975) considered *Tamerlania* as a sub-genus of *Tanaisia* but Freitas (1951,1959) synonymised the two. However Kanev *et al.* (2002) recognized *Tamerlania* as a valid genus with morphological characters somewhat between *Tanaisia* and *Paratanaisia*.

Genus 4-*Lepidopteria* : Erected by Nezlobinski (1926) for the worms collected from the kidneys of *Fulica atra* and *F.a. americana* with *L.atra* Skrjabin (1926) as type species. He described the characters corresponding to those of *Tanaisia*. Yamaguti (1958a,1971) recognized *Lepidopteria* as a subgenus of *Tanaisia*. Kanev *et al.* (2002) have followed Byrd and Denton (1950) in considering it a synonym of *Tanaisia*.

Genus 5-*Ohridia* : Erected by Nezlobinski (1926) for the parasites collected from the kidneys of birds in Macedonia with *O.panuri* Nez. (1926) as type species. Yamaguti (1958a,1971) recognized *Ohridia* as a subgenus of *Tanaisia*, but Byrd and Denton (1950) and Kanev *et al.* (2002) considered it a synonym of the latter.

Genus 6-*Prohystera* : Korkhaus (1930) described this genus as the parasites of birds in Germany with characters resembling *Tanaisia*. Ejsmont (1932) considered its type species *P.rossitensis* Korkhaus,1930 as a synonym of the type species of *Tanaisia*, *T.fedtschenkoi* and thereafter *Prohystera* was also considered a synonym of *Tanaisia* by subsequent authors (Kanev *et al.*,2002).

The present study is a contribution towards additional information concerning distribution of a new monostomid species parasitizing Crow Pheasant in India.

Table. 1 Comparative measurements (mm) of the species of *Tanaisia (tanaisia)*.

S.	Name of the species	L.	W	Oral sucker	Pharynx	Oesophagus	Testes	Ovary	Vesicula Seminalis	Vitelline Glands Left	Vitelline Glands Right	Eggs	Host
I	*T.(T.) fedtschenkoi* Skrjabin,1924	3.9	0.8	0.19x0.27	0.09x0.11	-	Oblique, strongly lobed	Median, lobed	Median	1.6	1.6	0.043x 0.020	*Tatanus glottis*
II	*T.(T.) elliptica* Nezlobinski,1926	2.0	0.75	0.20 dia.	-	0.14 long	Oblique, rounded lobes	Median irregularly oval	0.14 dia.	0.94	1.11	0.025x 0.015	*Hydrochelidon nigra*
III	*T.(T.) pelidnae* Cheatum,1938	3.08	0.44	0.21x0.20	0.075x0.094	0.075 long	Strongly lobed 0.259-0.289 long	Slightly lobate, 0.252x0.157	0.090x0.071	1.37	1.45	0.033x 0.020	*Pelidna alpina* sakhalina
IV	*T.(T.) inopina* (Freitas,1951) Pinto *et al.*,2005	1.9	0.45	0.17x0.20	0.05x0.08	-	Sinuous or lobed surfaces, slightly diagonal 0.15x0.12 in size	Lateral, slightly lobed	-	-	-	0.036x 0.017	*Passer domesticus*
V	*T.(T.) cameroni* Gupta and Saxena 1987	2.59	0.58	0.18 dia.	0.05x0.07	Absent	Lobed, slightly diagonal 0.15-0.20x0.12	Lobed, submedian, 0.26x0.17	-	-	-	0.025x 0.030	*Lanius schach*
VI	*T.(T.) orientalis* Sp.Nov.	3.06	0.64	0.21x0.22	0.07x0.098	Bulbous	Smooth surface, obliquely placed 0.140-0.154x 0.158-0.182	Lateral, irregularly lobed 0.192x0.176	0.09x0.099	1.28	1.68	0.030x 0.013.5	*Centropus sinensis*

Tanaisia (t.) orientalis **sp.nov.**
entire worm (ventral view)

OS : Oral sucker, PH : Pharynx, OS : Oesophagus
C : Caeca, OV : Ovary, T : Testis,
UT : Uterus
VIT - Vitellaria

MATERIAL AND METHODS

Centropus sinensis commonly known as Crow Pheasant or Greater Coucal is a large crow sized bird found in scrub and brush jungles. Locally known as "Lal Kawa" or "Mahoka" with chestnut wings feeding on small insects and animals on the ground. It is a wide spread resident in Asia from India to South China and Indonesia. A new species of a monostomid trematode of the genus *Tanaisia* inhabiting urinary tract of *Centropus sinensis* from the plains of Allahabad (U.P.) India has been described which is a new host record. Members of this genus are characterized from other genera of the family principally in diagonal testes, irregularly sub-median ovary and caeca united at the posterior end. These parasites with a life cycle involving terrestrial snails have been reported within kidneys in several orders of birds including Columbiformes, Passeriformes, Stercorariidae, Anseriformes, Galliformes and Piciformes (Rotstein *et al.*,2005). Renal trematodiasis which was observed is an incidental finding in these birds because there were no clinical signs and no prominent histological lesions were found in kidneys to associate it with urethral or pelvic obstruction as reported by Rotstein *et al.* (2005).

During the course of survey of the endohelminth parasites from the birds of Allahabad, only one mature specimen belonging to the genus *Tanaisia* Skrjabin (1924) was recovered from the urinary tract of one *Centropus sinensis* out of seven birds examined during different periods of the year. The living worm was mounted in toto, studied under cover glass in distilled water in living condition to study its movements, shape and position of various organs. The excretory and reproductive systems were particularly observed and studied. Bouin's fluid was used as fixative, whole mounts were stained in Ehrlich's haematoxylin, dehydrated in graded series of alcohol, cleared in clove oil, mounted in Canada balsom and examined under high power of microscope. Drawings were made with the help of camera lucida. The identification of the parasite was done at the Zoology department, University of Allahabad. The only Holotype obtained was deposited in the helminthological collections of the Zoology department.

RESULTS AND DISCUSSION

Family - Eucotylidae Skrjabin (1924)
Sub-family - Tanaisiinae Freitas (1951)
Genus - *Tanaisia* Skrjabin (1924)
Sub-genus - *Tanaisia (Tanaisia)* Yamaguti (1958)
Species - *Tanaisia (T.) orientalis* Sp. Nov. (Fig.1; Table.1)

Description : Based on one mounted specimen in toto; all measurements are in mms.

Body elongated and flattened, measuring 3.066 in length and 0.644 in maximum breadth which is almost in the mid body region. Anterior end of the body rounded and posterior somewhat blindly pointed. Cuticle covered with small scales which are beset with minute spines throughout the body length. Oral sucker more or less rounded, terminal, large and muscular, 0.21 in length and 0.224 in width. Pharynx broader than long, immediately behind Oral sucker, 0.070 by 0.098 in size. It opens into a small dilated oesophagus which bifurcates into wide intestinal caeca running parallel to the sides of the body up to 2.772 from the anterior end where they join each other and form a loop in front of the hinder end of body. Ventral sucker absent (Fig.1).

Testes paired, spherical, diagonally placed with smooth margins and located in the anterior half of body behind ovary; anterior testes smaller than the posterior one and measures 0.140 by 0.158 whereas the posterior testes is 0.154 x 0.182 in size. Vesicula seminalis rounded, 0.09 long and 0.099 wide, lying immediately in front of ovary. Genital pore located towards the right of median line at a distance of 0.352 behind intestinal bifurcation. Ovary irregularly lobed, almost trident shaped with deeply indented margins, pre-testicular and irregularly sub-median, about 0.77 away from the anterior extremityof the body on the right side partially overlapping right caecum. It measures 0.192 by 0.176 in size. Receptaculum seminis is oval and lies immediately behind ovary. Uterus with ascending and descending coils passing in between the testes is confined to most of the intercaecal space but a few uterine coils reach beyond the posterior caecal loop. Vitellallaria follicular in extracaecal field, partially overlapping the intestinal caeca; the two vitelline glands are not of the same length, the right being smaller than the left, not extending beyond ovary anteriorly. Ova numerous, dark brown in colour filling completely the entire uterus, 0.027-0.033 x 0.012- 0.015 in size.

The fluke belongs to the sub-genus *Tanaisia (Tanaisia)* which is evident from the fact that it possesses diagonal testes, irregularly sub-median ovary and caeca united at the posterior end. The new species under discussion comes closer to *T.(T.) fedtschenkoi* (Skrjabin,1924), *T.(T.) elliptica* (Nezlobinsky,1926), *T.(T.) pelidnae* (Cheatum,1938), *T.(T.) inopina* (Freitas, 1951) Pinto *et al.*,2005 and T.(T.) *cameroni* (Gupta and Saxena,1987). However, it differs from all as under :

1. Testes are lobed in *T.(T.) fedtschenkoi* and *T.(T.) elliptica* while in the new species testes are spherical with smooth margins. In *T.(T.) pelidnae* testes besides being strongly lobed are tandem, while in the new species they are obliquely placed.

2. Ovary is laterally placed towards the right side in the new species but it is median in *T.(T.) fedtschenkoi* and *T.(T.) elliptica*. In *T.(T.) pelidnae* it is slightly lobate and bigger in size than the ovary in the new species where it is irregularly lobed and comparatively smaller.
3. Whereas in the new form under discussion vitellaria terminate at different levels both anteriorly and posteriorly, but in *T.(T.) fedtschenkoi* and *T.(T.) elliptica* they reach forward upto the anterior border of the anterior margin of ovary.
4. Oral sucker in the new species is broader than long whereas in *T.(T.) pelidnae* it is longer than broad while it is round in *T.(T.) elliptica*.
5. Eggs measure 0.027-0.030 x 0.012-0.015 in new species; in *T.(T.) fedtschenkoi* they are much bigger being 0.043 x 0.02; in *T.(T.) elliptica* the eggs are smaller being 0.025 x 0.015 in size and in *T.(T.) pelidnae* they are slightly larger *viz.*,0.033-0.034 x 0.020.
6. *T.inopina* was previously identified as *Tamerlania zarudnyi* Skrjabin,1924 by Almeida (1936) on the basis of the specimens recovered from the Common Sparrow *P.domesticus*. Later Freitas (1951) restudied the samples of this trematode and named it as *Tanaisia inopina* taking into account the important morphometric data which Almeida (1936) had overlooked (Pinto *et al.*,2005). The new species differs from *T.(T.) inopina* in shape and position of testes which are placed in the same zone or slightly diagonal with lobed surfaces in the latter while the shape of ovary is slightly lobed in *T.(T.) inopina*.
7. Odening (1964) described *T.(T.) fedtschenkoi meridionalis* as a new sub-species from *Nettapus c.coramandelianus* in India which is sharply contrasted from the new species notably in the shape of testes (lobed in the former) and distribution of vitellaria.
8. Gupta and Saxena (1987) described the only two species *viz., T.(T.) cameroni* and *T.(T.) pritchardae* from *Lanius schoch* and *Leptoptilos dubius* respectively from Lucknow, India. They created the later as a separate species on the basis of "vitellaria overlapping caeca, genital pore sub-median and in relative size of various organs." However, while comparing the two species it was observed that vitellaria are almost distributed in the same space, the genital pores are located almost at the same levels and there are negligible variations in size of various body organs in the two species. These minor variations could be due to several factors like contraction of the specimens, pressure applied to the cover glass and other environmental factors which do not justify creation of a new species. The author is, therefore, of the opinion that since there are no conspicuous variations, *T.(T.) pritchardae* is considered a synonym of *T.(T.) cameroni*.

The new species differs notably from *T.(T.) cameroni* in presence of a dilated oesophagus (absent in the later), absence of ventral sucker (present in *T.(T.) cameroni*), spherical shape of testes (lobed in the later species) and extent and distribution of vitellaria which are confined to between the region of pharynx and ventral sucker and end at near middle of body length in *T.(T.) cameroni*.

It has been established in the record books of helminthology that infestation of *Tanaisia* is very rare in bird hosts and on several occasions new species of *Tanaisia* have been described from one specimen only (Table.1). The author has obtained only one specimen out of seven rare birds examined during the period 1971-1974. Though the author's interpretation of relationships between family/genera/species is a subject of discussion because the same data will be evaluated differently by future helminthologists. However, this research work is presented with this hope that its publication may eventually lead to recording a new species of this rare parasite from India where very little work has been carried out on this family/genus.

The present work is part of an unpublished doctoral dissertation submitted and approved by University of Allahabad, Allahabad in the year 1974. The same has been updated and reviewed by incorporating the contribution of subsequent workers through their published records and original data on the family/genus wherever necessary as on date. Certain details concerning bird nomenclature, habit/habitat is also added to the previous description.

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