

CESTODES OF DOMESTIC FOWL AT VISAKHAPATNAM  
WITH DESCRIPTION OF A NEW SPECIES OF  
*RAILLIETINA* (*RAILLIETINA*)

By

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INTRODUCTION

Studies on helminth parasites of domestic fowl (*Gallus gallus domesticus*) have been receiving attention from a long time. A number of cestode parasites have been reported from it at various parts of the world. Most of these species are cosmopolitan in distribution and well known. In the present study on cestodes of domestic fowl at Visakhapatnam, a new species of the genus *Raillietina* (*Raillietina*) has been encountered.

MATERIALS AND METHODS

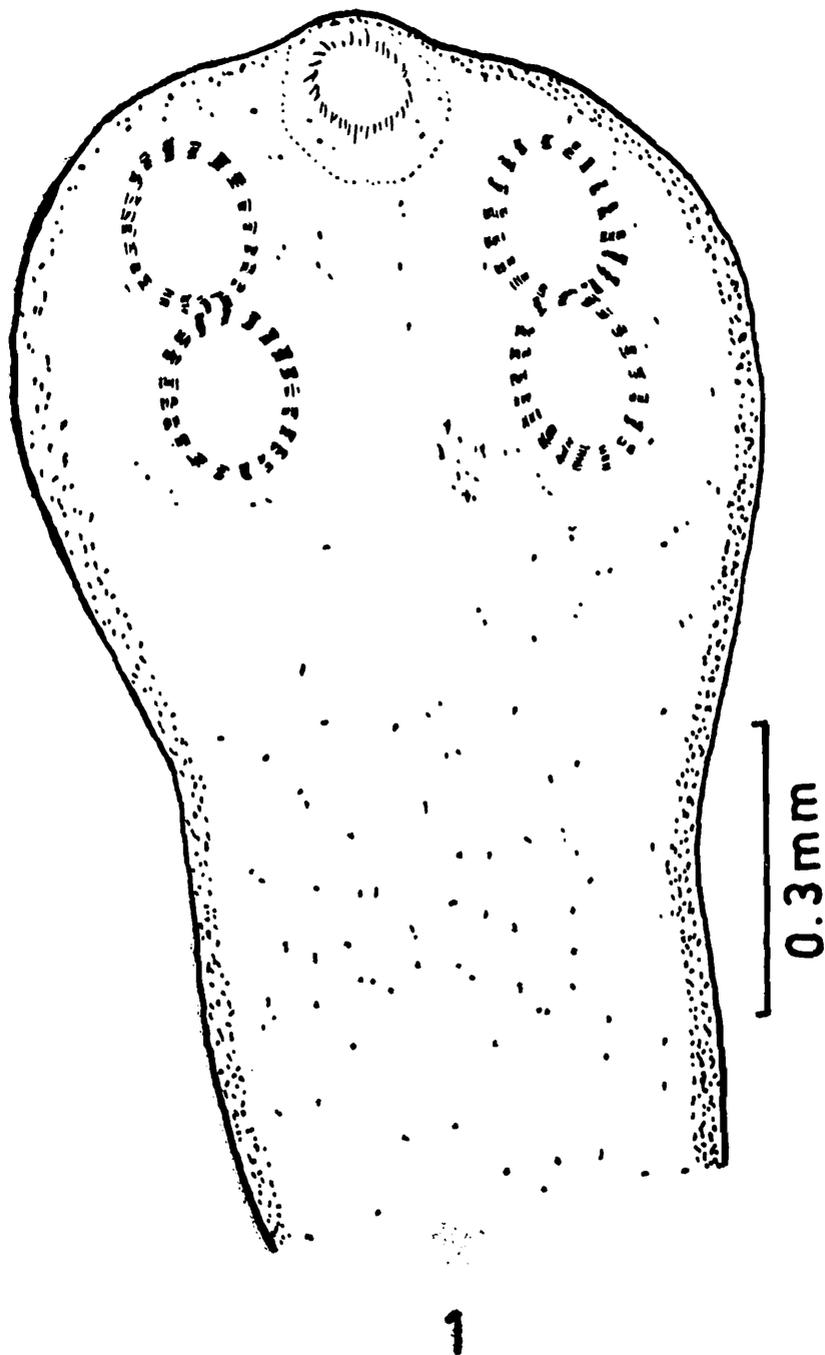
The intestine of the domestic fowls were procured from the locally poultry market and also from the cooking establishments of the campus hostels of the Andhra University. The intestines were opened in saline water in troughs and are lightly shaken in 1% Ringer's solution and the parasites were taken out. A number of whole mounts were prepared and stained with alum carmine. Camera lucida sketches were drawn. All measurements recorded in millimetres (mm).

***Raillietina* (*Raillietina*) *hanumantharaoi* n. sp.**

(Figs. 1-3)

Ten specimens of *Raillietina* (*Raillietina*) *hanumantharaoi* n.sp. could be obtained, associated with *R. (R.) echinobothrida*, *R. (R.) tetragona* and *R. (Skrjabinia) cesticillus* from a number of domestic fowls examined from Visakhapatnam.

*R. (R.) echinobothrida* (Mégnin, 1881), *R. (R.) tetragona* (Molin, 1858) and *R. (S.) cesticillus* (Molin, 1858) are identical with the previous descriptions.



Figs. 1-3. Camera lucida sketches of *R. (R.) hanumantharaoi* n. sp.

Fig. 1. Scolex.

The worms are pale white in colour and medium sized, measuring 250-280 in length and 0.08-3.76 in width. Scolex club-shaped, well developed and measures 0.816-0.896 in diameter. Rostellum measures 0.128-0.144 in diameter and armed with double rows of rostellar hooks. The hooks are

40-45 in each row and of same size, measuring 12-15  $\mu\text{m}$  in length. Suckers are round and measure 0.160-0.176 in diameter. Suckers armed with 8-11 rows of minute hooks.

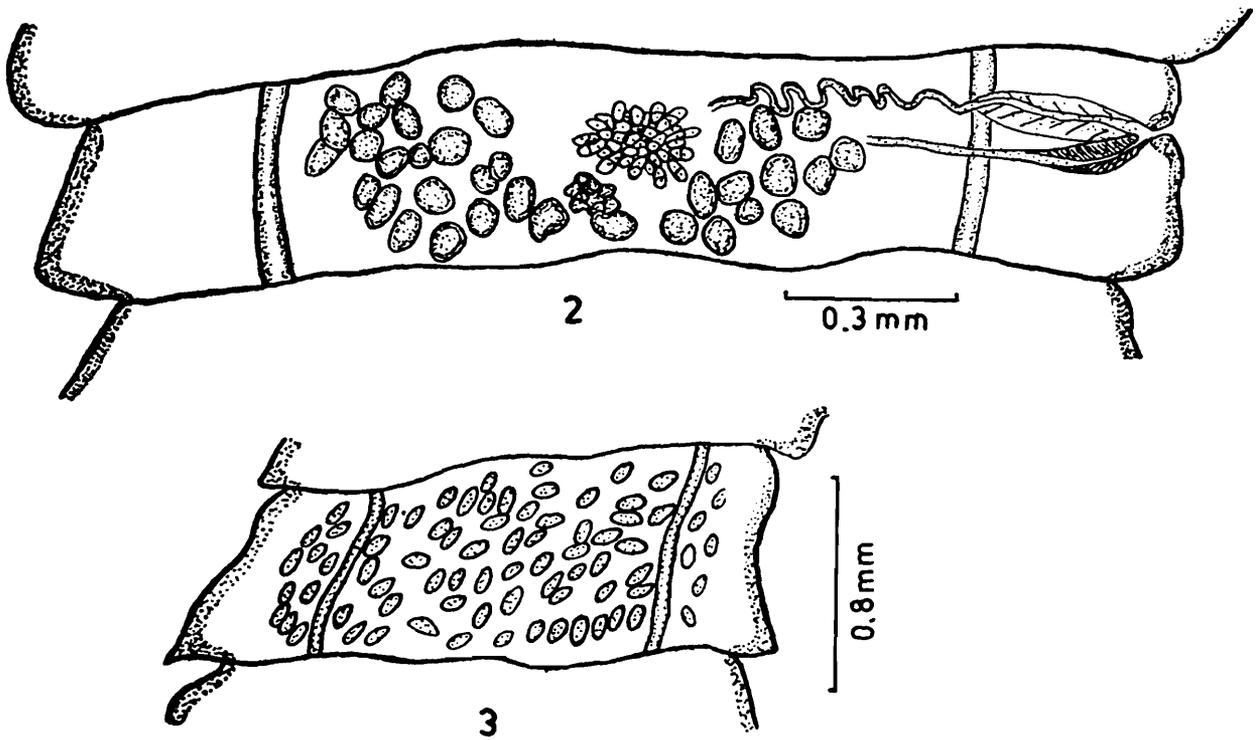


Fig. 2. Mature proglottid.

Fig. 3. Gravid proglottid.

Neck region long and measures 2.88-3.69 in length and 0.432-0.554 in width, proglottids craspedote in nature. All proglottids broader than long. Immature proglottids measure 0.080-0.176 in length and 0.688-0.880 in width. Mature proglottids broader measuring 0.192-0.320 in length and 1.040-1.696 in width. Gravid proglottids measure 0.48-1.07 in length and 1.728-3.760 in width. Genital pore unilateral and open in the anterior margin of the proglottid.

Osmoregulatory canals are lateral in position, dorsal and ventral canals are same in size, and measure 0.016-0.024 in diameter.

Testes round to oval in shape, 25-37 in number, distributed in between the osmoregulatory canals and more number to aporal side (18-24). Testes measure 0.064-0.128 in diameter. Vas deferens is a highly coiled tube. Cirrus sac very prominent, muscular and spindle shaped. Cirrus sac crosses the osmoregulatory canals and opens in the anterior margin

of the proglottid. Cirrus sac measures 0.240-0.448 in length and 0.0644-0.1120 in width and armed.

Ovary fan-shaped, situated in the middle of the proglottid and deeply lobulated. Ovary measures 0.192-0.608 in diameter. Vitelline gland a compact mass, post-ovarian and slightly aporal to the ovary. Vitelline gland measures 0.080-0.096 in diameter. Vagina is a thin tube, but becomes muscular before reaching the genital atrium and opening out, just adjacent to the cirrus opening into the common genital atrium. Vagina measures 0.064-0.080 in width at the base of genital atrium. Common genital atrium opens out by common genital opening.

Gravid proglottids are completely packed with uterine capsules, each capsule containing 8-12 eggs. Egg elliptical in shape and measures 0.012-0.019 in diameter.

#### DISCUSSION

There are a few species of *Raillietina* (*Raillietina*) reported from fowl—*R. (R.) echinobothrida* (Méglin, 1881); *R. (R.) dattai* Sinha, 1960; *R. (R.) tetragona* (Molin, 1858) and *R. (R.) shantungensis* Winfield et Chang, 1936.

The scolex of the present form is very big when compared to all other species of *Raillietina* (*Raillietina*) described. The present form differs from *R. (R.) echinobothrida*, in size of scolex, suckers and cirrus pouch, position of genital opening and number of testes and eggs; from *R. (R.) dattai* in the size of scolex, rostellar hook length, number of testes and position of genital opening; from *R. (R.) tetragona* size of scolex, suckers, rostellar hooks, cirrus pouch and number of testes; from *R. (R.) shantungensis* in length of strabila, size of scolex, suckers, rostellum, cirrus sac, number of testes and eggs and position of genital opening.

*Raillietina* (*Raillietina*) *loeweni* Bartel and Hansen, 1964 and *R. (R.) leiopoeae* Johnston et Clark, 1948 are the two forms with bigger scolecies but the present form differs from these two forms in all other characters like number of testes and eggs and other measurements. The present form shows slight

Comparative chart of measurements of the closely related species with those of new species of *Raillietina* (*Raillietina*)

	Present study	<i>R. (R.) echinobothrida</i>	<i>R. (R.) dattai</i>	<i>R. (R.) tetragona</i>	<i>R. (R.) shantungensis</i>	<i>R. (R.) loeweni</i>	<i>R. (R.) leiopoeae</i>	<i>R. (R.) korkei</i>
<b>Strobila :</b>								
Length	250-280	120-150	150-200	250-335	103	370-740	3-6	164
Width	0.08-3.76	1.5-4.0	2-3	1.7-4.0	4.0	1.85-2.44	—	2.0
Scolex	0.816-0.896	0.25-0.55	0.4	0.17-0.35	0.224	0.725-0.827	0.65	0.2
Rostellum	0.128-0.144	0.10-0.15	0.087×0.062	0.05-0.06	0.076	0.006-0.013	0.24-0.28	0.13
Rostellar hook size	12-15µm	0.01-0.013	0.008-0.01	0.006-0.008	0.014	0.007-0.008	0.039-0.052	0.018-0.020
Suckers	0.16-0.176	0.12-0.20	0.148-0.156	0.09-0.11	0.069	0.259-0.301	0.16	0.06-0.07
Neck width	0.432-0.554	0.34-0.48	0.28	0.08-0.10	—	—	—	—
Testes No.	25-37	22-30	32-40	20-30	43-57	45-70	22-23	24
Diameter of testes	0.064-0.128	0.096-0.112	0.032-0.08	0.048-0.064	—	0.036-0.062	—	0.035
Cirrus sac	0.24-0.448	0.149-0.163	0.272-0.320× 0.08-0.096	0.075-0.1	0.189	0.11-0.137× 0.072-0.091	0.1-13× 0.06-0.07	0.105-0.11× 0.05
Ovary	0.192-0.608	0.4-0.8× 0.28-0.32	0.27-0.32	0.24-0.27	—	—	—	—
Vitellaria	0.08-0.096	0.08-0.11	0.112-0.128	0.08-0.128	—	—	—	—
Eggs in	8-12	3-8	6-12	6-12	1-5	1-5	21-26	6-9
Diameter of egg	0.012-0.019	0.073-0.077	0.029-0.032	0.057-0.063	0.027-0.038	0.06-0.065	—	0.018×0.014

resemblances to *R. (R.) korkei* Joyeux et Houdemer, 1927 in the length of the worm, rostellum diameter and number of eggs in the uretine capsule. But its scolex is very small being 0.2 in diameter, whereas the present specimens scolexes measure 0.8-0.9 in diameter. It also differs in the width of the strobila, suckers diameter and size of the cirrus pouch and testes.

The present specimen is compared with all the above mentioned species and a comparative table is given below. Taking all these differences into consideration it is proposed to describe this as a new species of *Raillietina* (*Raillietina*) and named it as *Raillietina* (*Raillietina*) *hanumantharaoi* n.sp.

The new species, *R. (R.) hanumantharaoi* is named in honour of our beloved teacher, Dr. K. Hanumantha Rao, Professor of Zoology, Andhra University, Waltair.

*Note* : Specimens were deposited in the Department of Zoology, Andhra University, Waltair (R. No. SR/84/2).

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