Percentage of mortality caused by some common Indian Coccinellidæ

Name of the predator	% Destroyed by			Fecundity		Days			Host
	Grub	Adult	Average	Max.	Average	Grub	Adult	Average	
Coccinella septempunctata L.	84	73·6	78·8	562	395	13	36	24·5	Aphis
Chilomenes sexmaculata F.	88·3	86·1	87·2	632	373	9	28	18·5	do
Brumus saturalis F.	91·8	79·9	85·85	I14	105	12	23	17·5	do
Coccinella 11 *punctata* L.	95·7	87·0	91·35	450	322	14	33	23·5	do
Coccinella 11 *punctata* var. *menetriesii* Muls.	..	92·1	..	..	..	..	31	..	do
Verania cardoni Ws	..	89·7	..	350	181	..	28	..	do
Average ..	89·95	84·73	85·8	421·6	275·2	12	29·83	21	
Chilomenes sexmaculata F.	83·8	90·3	86·5	..	..	9	35	22	Psylla
Brumus saturalis F.	..	91·9	..	..	..	..	25	..	White fly
Sumnius renardi Ws.	77·2	64·4	70·8	420	298	22	61	41·5	Mango mealy bug.

tality of the mango mealy bugs. *Chilocorus nigretus* F. was also observed to feed extensively on the mango scale (*Pulvinaria* sp.).

The mortality of aphids caused by the several species of coccinellid beetles, individually and collectively, is encouraging. The maximum fecundity and average fecundity of these beetles is satisfactory. The period during which mortality was caused by the grubs and adults is fairly long and they were active throughout the year. Thus above quantitative data indicates the potentiality of these predators in the control of these pests provided they are used under known biological conditions.

Mass rearing under controlled conditions and their liberation in the infested fields, on the lines of Los Angeles Laboratory, U.S.A. for *Cryptolæmus* and *Rodolia* may thus provide an ample opportunity to the applied Entomologists for using biological control on some of the hemipterous insect pests of crops in India by indigenous Coccinellidæ.

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1. Aiyer, T. V. R., *Jour. Bomb. Nat. Hist. Soc.*, 1925, **30.** 2. Beeson, C. F. C., *Forest Insects of India*, 1941. 3. Fletcher, T. B., *Some South Indian Insects.*, 1914, 4. —, *Agr. Inst. Pusa Bull.*, 1916, 1919. 59 and 89. 5. Kapoor, A. P., *Ind. Jour. Ent.*, 1939, 1. 6. —, *Curr. Sci.*, 1940, **9.** 7. —, *Ind. Juor. Ent.*, 1942, **5,** 8. Trehan, K. N., *Curr. Sci.*, 1943, **12,** 9. Trehan, K. N., and Bagal, S. R., *Jour. Bomb. Nat. Hist. Soc.*, 1945, **45,** 4. 10. Varma, B. K., *Thesis M. Sc.* (*Ag.*) *Agra University Lib.*, 1947.

ON A NEW CERCARIA, DETERMINED TO BE THE LARVA OF *GASTRODISCUS SECUNDUS* LOOSS, *1907*

During the course of a systematic study on the cercarial fauna of fresh-water molluscs in Madras, a type of Amphistome cercaria was met with, which differed considerably from the known species of the group. Transmission experiments revealed that this is the larva of *Gastrodiscus secundus* Looss, 1907.

This cercaria was obtained exclusively from *Planorbis exustus* Deshayes. Its general behaviour and morphological features are very much in conformity with those of the other Amphistome cercariæ, excepting for the deviations mentioned below. It presents all the characters described for the subgroup "Diplocotylea" of Sewell (1922). Only two forms belonging to this subgroup—*Cercariæ Indicæ XXI* Sewell (1922) and *Cercaria kylasami* Rao (1932)—have been previously reported from India.

The present one can be differentiated from the two forms mentioned above by the following features:

1. The presence of two well-defined oral pouches (pl. 1),
2. The occurrence of yellowish-brown, rectangular, crystalline contents in the œsophagus and the cæca,
3. The less tortuous course of the main excretory trunks (pl. 2) which are provided with lateral evaginations, anteriorly,
4. The typical picture afforded by the different cell groups of the genital system (pl. 3) which are arranged exactly similar to the reproductive organs in the adults of the genus *Gastrodiscus*.