Table. Relation between size of body, abdomen and the ovariole number in H. ceylonica.

Body Length mm	Abdomen		No. of ovarioles		Total No. of ovarioles
	Length (mm)	Width (mm)	Left	Right	
42	30	10	23	25	48
40	19-20	9-10	24-25	21-24	45-49
38	17-19	9-11	22-27	24-27	51-52
37	18	9	30	28	58
36	15-20	7-10	20-29	22-27	42-54
35	15-20	8-11	21-30	21-27	42-57
34	14-15	7-10	24-29	22-30	46-56
33	14-16	8-10	22-28	22-29	45-56
30	14	8	27	27	54

MORPHOLOGY AND SIGNIFICANCE OF THE SALIVARY RESERVOIR IN THE PRAYING MANTIDS (DICTYOPTERA : MANTIDAE)

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ABSTRACT

The size of the reservoir of salivary gland and length of the duct in praying mantis were directly related to the size and length of pro and meso thoracic segments respectively. Females had larger salivary gland enabling the insect to consume more pray than males.

KEY WORDS : Praying Mantids, Salivary gland, Morphology.

Little information is a available on the salivary reservoir of mantids except that of Mkhize and Kumar (1972, 1973) who mentioned the presence of the reservoir in mantids. In this paper the morphology of the salivary reservoir with the feeding rate is discussed.

MATERIALS AND METHODS

The experimental mantids *Euantissa pulchra* (Fabricius), *Elmantis trincomaliae* (Saussure), *Humbertiella ceylonica* Saussure and *Hierodula* sp were collected in Coimbatore and reared in the laboratory by providing house flies for their feeding. Dissections were done in insect saline solution for the display of the salivary reservoir. Measurements were made with an ocular micrometer under a compound microscope.

RESULTS AND DISCUSSION

As a rule the salivary reservoir in a mantid *E. pulchra* is a thin walled, transparent and posteriorly closed saccular structure found only in the left salivary gland. The proximal

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part of the reservoir was conical as well as naked since the anterio-ventral lobe was absent in the left gland. In contrast, the posterior part of the reservoir passed posteriorly and inwardly between the dorsal and ventral halves of the left salivary gland. A short duct of the reservoir opened anteriorly into the duct of the left gland.

The reservoir was about one and half times larger and longer in the female mantids than in their respective males. The size of the reservoir was in direct proportion to the body size while the length of gland with pro- and meso thoracic length (Table). The reservoir lay in the body cavity between the attachment of the fore legs with the body and about at the middle of the prothoracic segment. The duct of the reservoir was white and broader at the proximal end and narrower at distal which was fairly stiffened with spiral lining of taenidae which keep them open as in cockroach (Cornwell, 1968). The striation of the reservoir duct was more prominent in the shorter ducts than in the longer and slender ducts in the mantids. Though asymmetrical arrangement of organs such as teeth (Levereault, 1936), ovariole (Karuppanan, 1986), salivary gland (Karuppanan, 1988) and external genitalia (Balderson, 1978) of mantids was reported, the complete absence of reservoir in the right gland as well as anterio-ventral lobe in each gland might be the unique features found in the mantid *E. pulchra* as in other mantids studied (Karuppanan, 1988).

The rate of food consumption was progressively increased, according to the size and sex of mantids (Table).

The salivary reservoir of female was larger than male, which had direct relationship with the size of the mantids. The larger sized mantids have relatively the larger sized salivary glands and reservoir. The reservoir in the mantids acts as a storage organ of enzymes namely amylase, protease and lipase (Mkhize and Kumar, 1972).

The females consumed greater number of house flies than the males in the mantids studies (Table), because of larger sized salivary glands and reservoir.

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ble. Data on body size, reservoir and food consumption in mantids.

	Body length (average)	Prothorax		Mesothorax		Reservoir		Reservoir duct		No. or house flies consumed per day
		L (mm)	W (mm)	L (mm)	W (mm)	L(μ)	W(μ)	L(μ)	W(μ)	
Females										
E. pulchra	22.50	5.50	2.50	2.50	2.50	23.50± 0.56	12.50± 0.25	23.50± 0.25	4.00± 0.00	7.83
E. trincomaliae	25.35	5.86	2.86	3.37	3.19	64.74± 0.44	14.50± 0.43	24.75± 0.22	4.25± 0.22	10.35
H. ceylonica	36.87	14.00	4.10	4.10	4.00	82.75± 2.86	19.00± 0.61	33.25± 1.20	7.75± 0.22	26.80
Hierodula sp.	68.41	20.54	5.00	5.00	4.60	120.00± 0.56	22.25± 0.41	39.50± 0.43	8.75± 0.22	75.00
Males										
E. pulchra	15.00	3.33	2.00	2.10	2.11	32.25± 0.89	8.50± 0.25	5.75± 0.22	3.25± 0.22	1.81
E. trincomaliae	20.00	3.53	2.51	2.53	2.53	35.50± 0.50	12.00± 0.35	10.50± 0.25	3.00± 0.00	3.41
H. ceylonica	32.21	9.32	7.33	3.36	3.34	64.50± 2.30	17.50± 1.34	23.00± 1.27	4.25± 0.22	10.00
Hierodula sp	55.67	12.13	9.33	6.43	6.42	73.75± 3.24	21.75± 0.65	27.25± 0.74	7.75± 0.22	22.6

= Length, W = Width