Animals of different sizes were removed from the timber exposed at Visakhapatnam harbour without damaging their shell and the experiments were conducted at temperature 25° ± 0·5° C[6]. Animals (0·077 g to 1·02 g) were taken in individual respiratory chambers and the total oxygen consumed was determined at the end of four hours.

The relationship between the body size and oxygen uptake has been obtained from the following equation[7]:

$$Y = a.X^b$$

where Y = oxygen consumption in ml/hr, X = the body weight, while a & b are constants.

The value of b in the above equation was determined to be 0·5665 and is thus nearer to the two-thirds power of body weight. A regression curve of oxygen consumption to body size (Fig. 1)

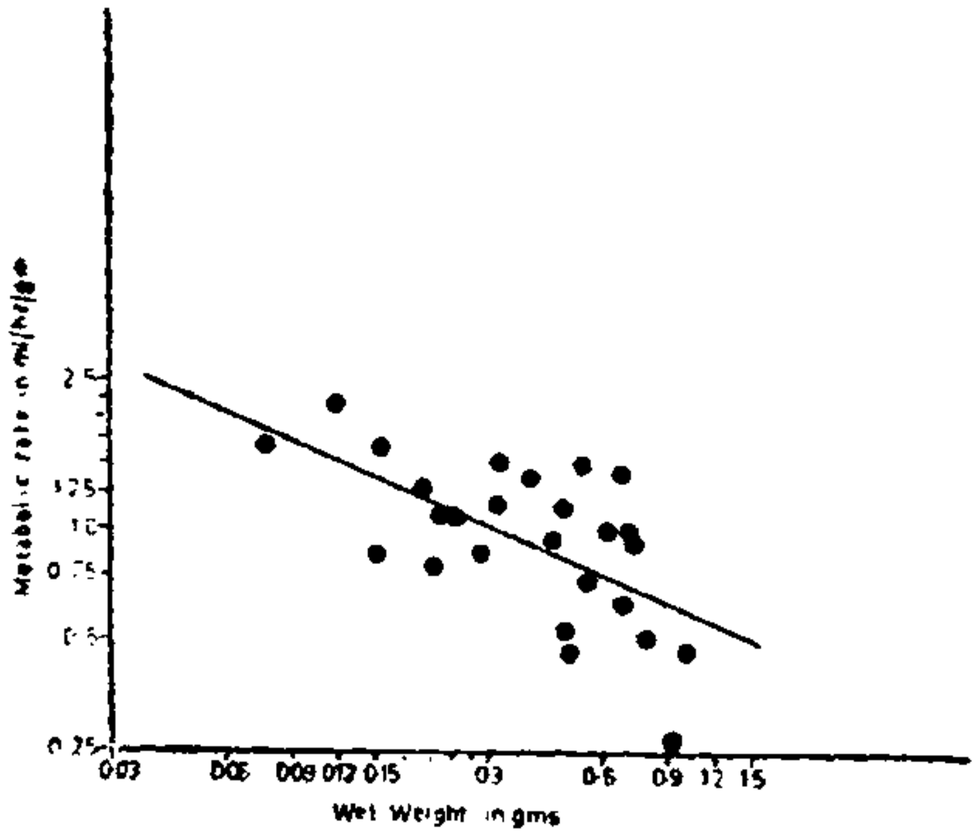

FIG. 1. Double log plot of oxygen consumption *vs* body weight in *Martesia striata*.

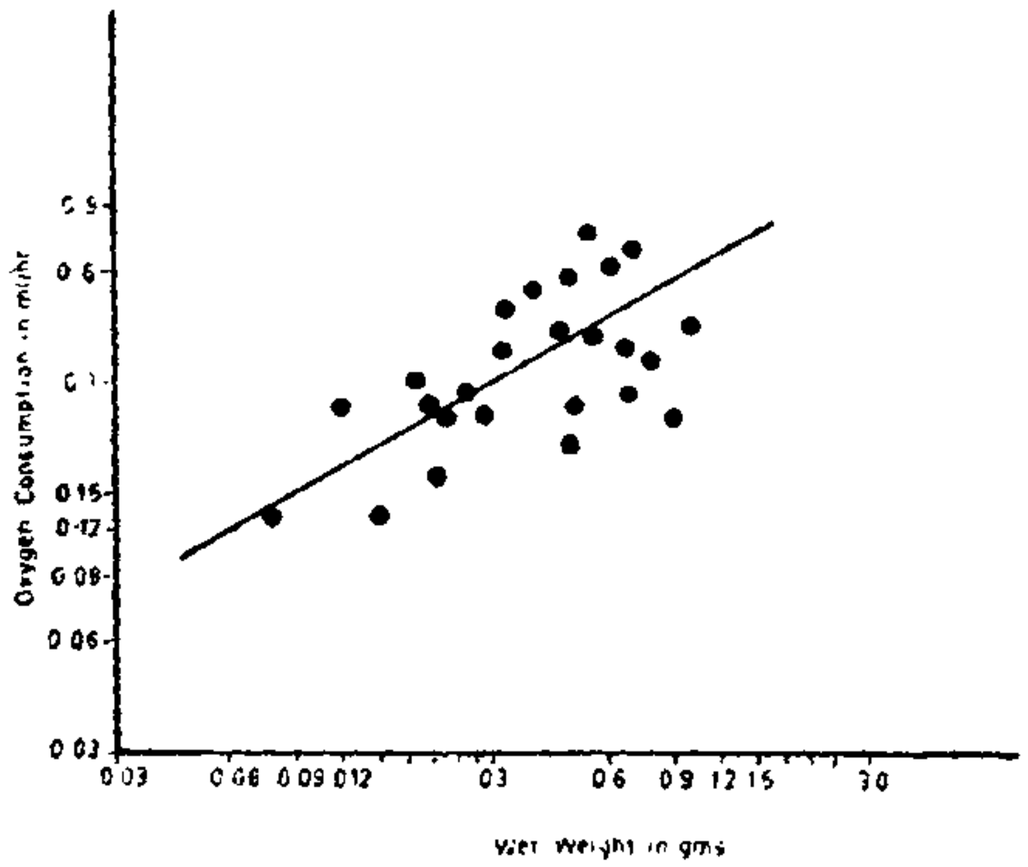

FIG. 2. Double log plot of metabolic rate against body weight.

shows that the oxygen consumption of animal increases with an increase in the size. The oxygen consumption varied from 0·131 to 0·7880 ml/hr in the various size groups examined. The oxygen consumption per unit weight or metabolic rate varied from 0·2664 to 2·202 ml/gm/hr being inversely proportional to the body size (Fig. 2).

Although oxygen consumption in *M. striata* shows an exponential relationship to body size, in the same size group itself great variations were evident (Fig. 1). Ghiretti[8] observed that metabolic rate varied widely within a single species as a result of both intrinsic and extrinsic factors in molluscs. Further even under constant external conditions, the oxygen consumption of a given specimen is extremely variable[8]. The variations recorded in the experiments therefore do not show tendencies unusual to bivalves. The value of b observed in the present studies was also found to be very close to the value obtained for an allied wood borer *M. fragilis* earlier[3].

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CROSSING TECHNIQUE IN MUNG BEAN (*PHASEOLUS AUREUS* ROXB.)

ARTIFICIAL crossing in *Phaseolus* species is considered to be a difficult proposition, primarily due to high percentage of flower drop. Coupled with this problem is the lack of precise information about the technique of crossing. Boiling *et al* (1961) have described the method of emasculation and pollination but have not given any information about the appropriate time of emasculation and pollination. A preliminary investigation was, therefore, undertaken to determine the optimum time

TABLE I

Number of flowers emasculated and pod set in different stages

Emasculation timings		Pollination timings							
		Morning				Evening			
		Bud stage at pollination time							
		Close	Open	Drop	Total	Close	Open	Drop	Total
Morning	Flowers emasculated	..	81	..	81	33	47	6	86
	Pod set	..	5	..	5	0	11	0	11
Evening	Flowers emasculated	31	54	17	102	..	90	..	90
	Pod set	0	17	0	17	..	5	..	5

of emasculation, pollination and the selection of proper bud stage.

This investigation was conducted using two newly developed strains of mungbean, namely, ML1 and ML4. ML1 was used as female parent and ML4 as male parent. Two different times of emasculation and pollination, *viz.*, morning from 8·00 to 11·00 a.m. and evening from 4·00 to 6·30 p.m.; were chosen. This resulted in four combinations, namely: (*i*) morning emasculation, morning pollination, (*ii*) morning emasculation, evening pollination, (*iii*) evening emasculation, evening pollination and (*iv*) evening emasculation followed by pollination next morning. Buds of three different stages recognised by the colour, *viz.*, green, yellowish green, and greenish yellow were emasculated. The emasculation and pollination of flower buds were done as suggested by Boiling *et al.* (1961). At the time of pollination the emasculated buds were observed to be closed, opened and dropped. It was noted that emasculated buds of green colour either dropped before pollination or during pollination. Yellowish green emasculated buds were fully blossomed (open stage), while greenish yellow emasculated buds were observed to be closed at the time of pollination. Therefore, only the last two categories of buds were pollinated.

The emasculated buds were pollinated according to the schedule. The data regarding the flowers emasculated and the pod setting in different flower stages are presented in Table I.

It is clear from Table I that evening emasculation followed by next morning pollination gave the highest pod setting of 17 pods out of 102 buds emasculated (17%) and the next in order was the morning emasculation followed by evening pollination resulting in 11 pods out of 86 buds emasculated (13%). Based on number of pollinations made the per cent pod setting was 20% and 14% respectively. Furthermore, it was noted that simultaneous emasculation and pollination either in the morning or evening gave very low pod set, *viz.*, 5–6%.

It was very much interesting to note that the flowers that remained closed at pollination time did not set any pod, while whole of the pod setting was observed in those buds which blossomed (remained open) at the pollination time. Non-setting of pods in the flowers that were closed at pollination time may be due to the fact that the female was no more receptive.

It is, therefore, suggested from the present study that high percentage of pod setting in *Phaseolus aureus* can be obtained by following emasculation of yellowish green (open) stage) buds in the evening (4.00 p.m. to 6.30 p.m.) and pollination of only blossomed flowers in the next morning (8·00 a.m. to 11.00 a.m.). The applicability of these findings were also tested in interspecific hybridization between *Phaseolus aureus* and *Phaseolus mungo* and a pod setting up to 34% has been achieved.

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ONTOGENY, STRUCTURE AND DISTRIBUTION OF TRICHOMES ON THE FLORAL PARTS OF *CELSIA COROMANDELIANA* VAHL.

VARIOUS types of trichome occur on plants and their taxonomic significance has been emphasized by several workers especially in respect of the families Compositae (Carlquist[2-4], Ramayya[9]); Icacinaceae (Heintzelman and Howard[6]); Labiatae (Mathur[8]); Lentibulariaceae (Farooq and Siddiqui[5]) and Scrophulariaceae (Kaur[7]). Bachmann[1] investigated the structure of hairs in many angiosperm taxa and presented a key for their identification.

The present note deals with the ontogeny, structure and distribution of trichomes on the floral parts of *Celsia coromandeliana*. The buds and flowers were collected from the bank of river