

is the same but as the skeletal muscles differentiate into the adult types they synthesize more active lysozyme than the heart and among the skeletal muscles the PLD synthesizes more active enzyme than the ALD. Many muscle enzymes are known to differentiate prenatally⁷ but the present results indicate that the lysozyme of chicken skeletal muscles differentiates only postnatally. Greater lysozyme activity speaks of well-organised lysosomal activity existing in the muscle. From the point of pathophysiological significance it is suggestive that the adult skeletal muscles need synthesize more lysozyme for their protection whereas the embryonic muscles are well protected by the lysozyme of the egg albumin.

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Department of Zoology, E. RADHA.

Bangalore University, R. V. KRISHNA MOORTHY.

Bangalore-1, India,

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RESPIRATORY METABOLISM IN *POLYDESMUS GRACILIS* (DIPLOPODA) AS A FUNCTION OF TEMPERATURE AND SEX

THE work on the respiratory metabolism in millipedes has been a comparatively neglected field except for a few investigations^{1,2}. The present study on the respiration in the millipede, *Polydesmus gracilis* was undertaken to find out the acclimatory response in relation to temperature and sex.

The oxygen uptake was measured by pressure sensitive manometers described elsewhere³. 20% KOH was used as carbon dioxide

absorbant. The millipedes were acclimated for 1-2 weeks at 20° C and 4 days at 35° C. The oxygen consumption was measured at acclimated and unacclimated temperatures. While the male millipedes shifted from 20° C acclimation temperature to 35° C died on the following day, the females survived.

The results show that the rate of oxygen uptake at 20° C acclimation is 31% and 41% higher in males and females respectively than when tested at 20° C on transfer from 35° C acclimation. On the other hand the rate of oxygen consumption of 35° C acclimated millipedes is 13% and 38% lower in males and females respectively than those of the 20° C acclimated ones tested at 35° C (Table I and Fig. 1). Similar trends were also observed in

TABLE I

Temperature (°C)		Male	Female
Accl.	Test	Mean and S D (ml. O ₂ /hr./animal)	Mean and S.D. (ml. O ₂ /hr./animal)
20	20	0.016 ± 0.002	0.029 ± 0.009
35	20	0.011 ± 0.003	0.017 ± 0.001
35	35	0.045 ± 0.009	0.081 ± 0.004
20	35	0.051 ± 0.006	0.084 ± 0.004

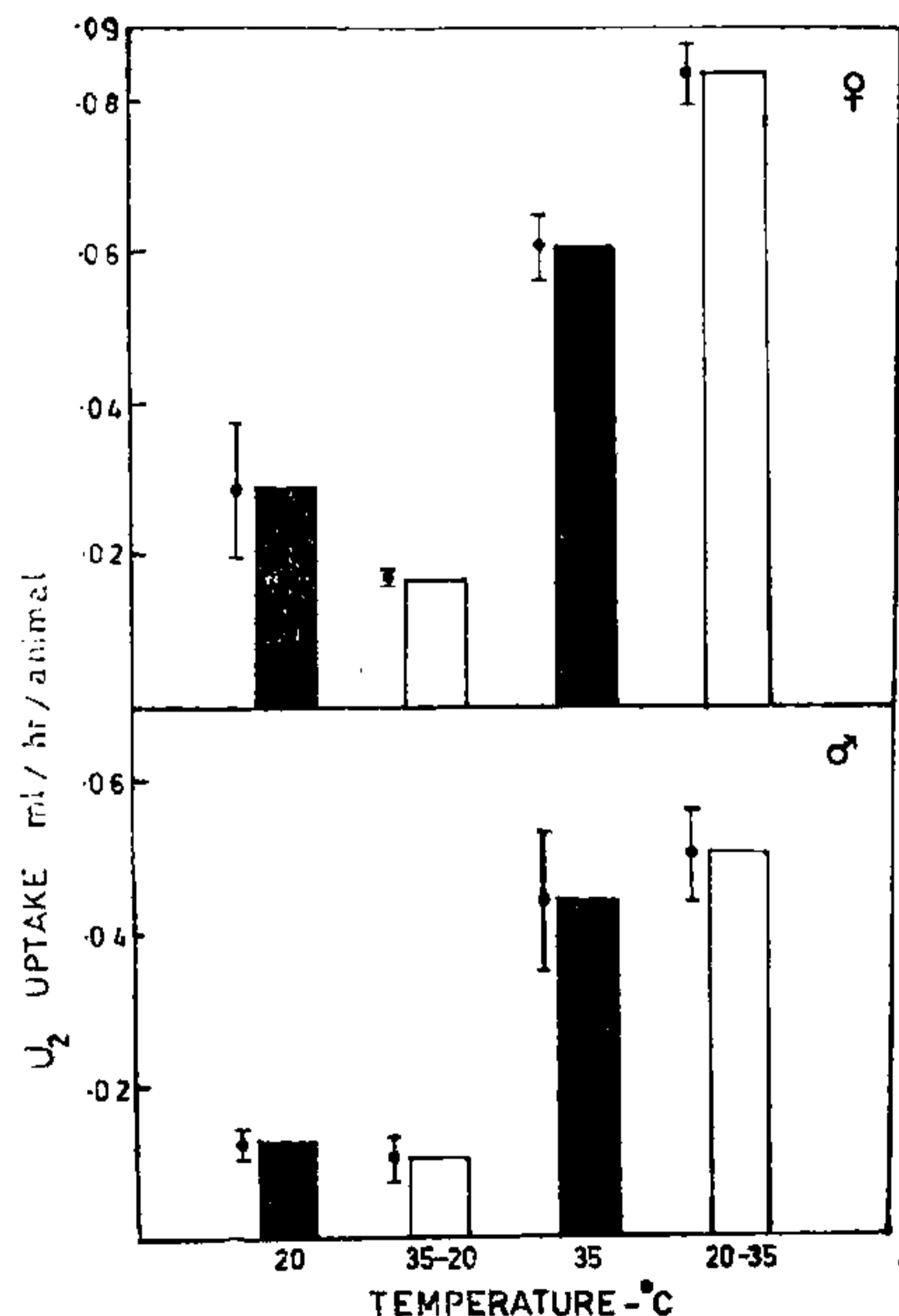


FIG. 1. Oxygen consumption of *P. gracilis* in the acclimated and unacclimated temperatures. Seven millipedes were used for each temperature.

other millipedes, *Spirostreptus asthenes*³ and *Harpurostreptus* sp.⁴

The lower rate of oxygen uptake in a higher acclimated temperature (35° C) and a higher rate at a lower acclimated temperature (20° C) than when transferred to the unacclimated temperatures (20° C and 35° C) shows a clear thermal acclimation in these millipedes. Carlisle and Cloudsley-Thompson⁵ also found out similar thermal acclimation in a few tropical terrestrial arthropods.

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Dept. of Zoology, S. K. DWARAKANATH.
American College, O. G. W. BERLIN.
Madurai-2, S. India, R. SELVARAJ PANDIAN.
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A NOTE ON AN AMPHIPOD SWARM ALONG THE SOUTH-WEST COAST OF INDIA

OBSERVATIONS on board the vessel "Blue Fin" during one of the cruises of a joint programme of Central Institute of Fisheries Operatives (C.I.F.O.) and National Institute of Oceanography (N.I.O.) led to the notice of a swarm of amphipods along

the coast of Kerala, off Cochin on 9th April 1970. Swarms of planktonic organisms like dinoflagellates, diatoms, polychaetes and cladocerans have been reported by various authors from different coastal waters of India¹⁻⁶. But swarms of amphipods have not been reported earlier. Although in certain regions and in definite seasons hyperiid amphipods do occur in masses in the sub-surface layers and in depths greater than 4000-5000m they constitute an important member of the plankton (Vinogradov, 1968⁷).

The swarm was first noticed as the ship reached a sounding depth of 130 meters off Cochin (32^m away from the shore) and it became denser and denser as the depth increased, stretching nearly 12^m into the ocean, from thereon it decreased. Vertical hauls of plankton were taken using a 200 micra net from station 17 A and B at two depths, one from immediately above and the other from below the thermocline (Table I); but the thermocline was diffuse and ill-defined.

Examinations of the samples revealed that the swarm was constituted (99%) by a single species of amphipod belonging to the family Hyperiididae under the sub-order Hyperiidea. The species has been identified as *Hyperia sibaginis* Stebbing⁸ (Fig. 1). Two samples were exclusively constituted by males, while in the other two, although males dominated a few females were also present.

The observed trend in the density of the swarm was a gradual decrease in abundance from station 17 to 18 (Table I). The number

TABLE I

Showing the location and hydrographic data

Station	Date	Time (hrs.)	Latitude	Longitude	Sounding depth (in meters)	Thermocline (in meters)		Stratum sampled (in meters)
						From	To	
17-A	9-4-1970	0108	09° 45' N	75° 39' E	164	75	125	75-0
17-B	"	0055	" "	" "	"	"	"	158-0
18-A	"	0305	09° 48' N	75° 28' E	1005	75	100	75-0
18-B	"	0410	" "	" "	"	"	"	980-0

Station	Temperature °C (surface)	Salinity ‰	Oxygen (ml/l)	Volume of water filtered	Displacement volume	No. of amphipods		Density 100/M ³
						Males	Females	
17-A	30.4	34.65 (surface)	4.537	19.8 M ³	6.5 ml	1202	20	6100
17-B	30.4	34.72 (at 150 meter)	0.8507	71.6 "	32.0 "	5724	..	7900
18-A	30.1	34.65 (surfaces)	4.82	20.2 "	3.8 "	58	..	290
18-B	30.1	34.9 (at 980 meters)	0.5632	250.5 "	12.0 "	350	..	140