

The birds were starved for 24 hours to allow emptying of intestinal residues. Thread ligatures were placed at crop-lower oesophageal, lower oesophagus-proventricular, pyloric-duodenal and ileo-caecal junctions in anaesthetised birds. Thorough and clean washing is essential for a correct estimation of absorption. Two small incisions were given at the opposite ends of each ligatured section and the part of the gut was washed with Krebs-Ringer bicarbonate solution at 37°.

Ligations 5 to 6 cm apart were given in washed lower oesophagus, duodenum and ileum. One ml Krebs-Ringer bicarbonate solution at 100 mg % glucose concentration at 37° was injected into each of the above segments. The viscera and the ligatured segments were kept moist with Krebs-Ringer bicarbonate solution at 37°.

Absorption was allowed for 30 minutes, following which the segments were separated from the rest of the gut and removed. The post-absorption fluid was collected in vials and the wet weight of the separated segments were recorded. An aliquot of the fluid was taken for colorimetric determination of glucose.<sup>8</sup> Results are expressed in Fig. 1.

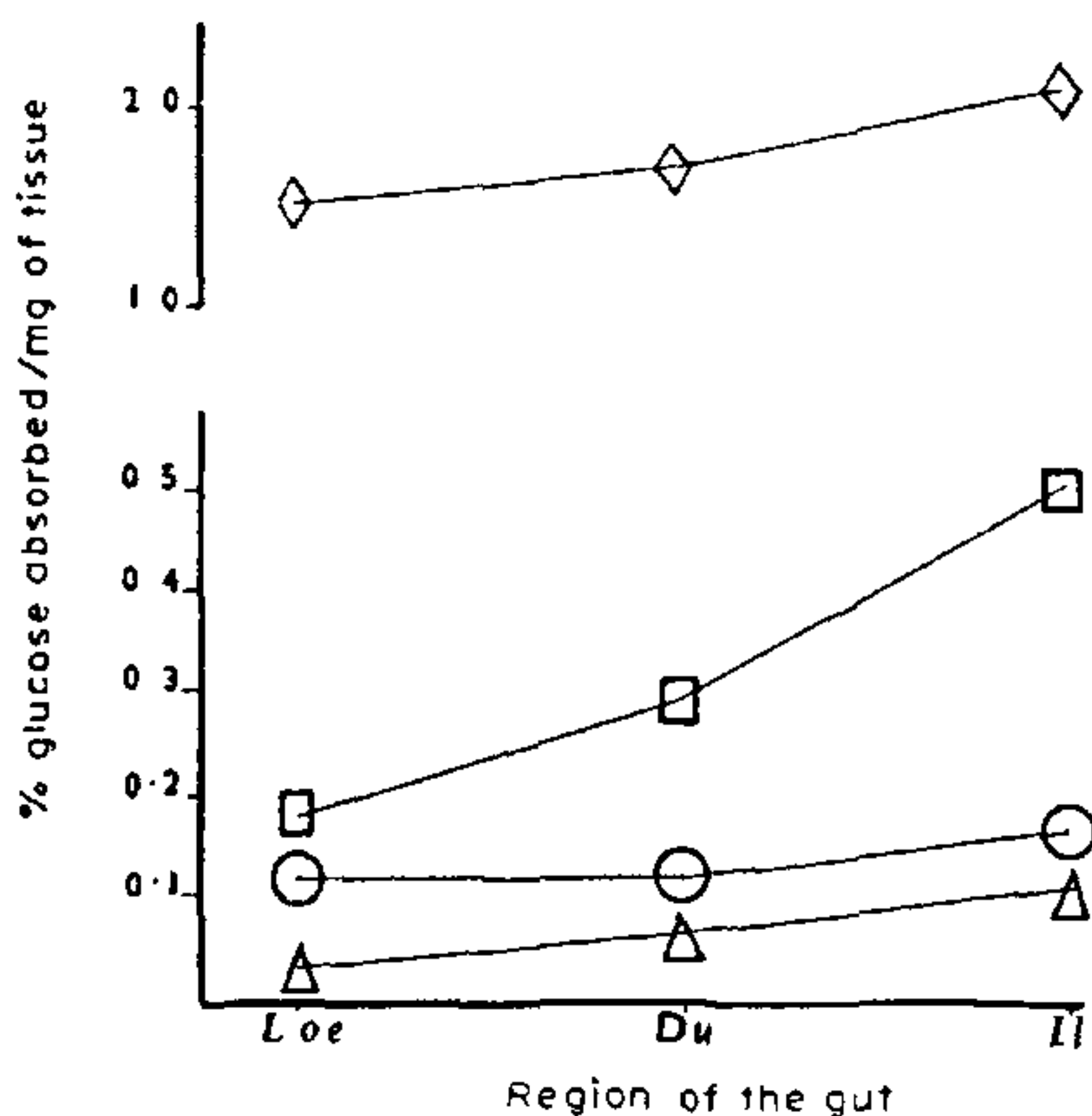


FIG. 1. Absorption of glucose per mg of tissue in 30 minutes by different regions of the gut, expressed in terms of per cent at 37°. One ml gassed (95% O<sub>2</sub>, 5% CO<sub>2</sub>), warmed (37°), Krebs-Ringer bicarbonate solution at 0.1% glucose concentration is injected in each ligated segment of lower oesophagus (Loe), duodenum (Du) and ileum (Il) in *Passer domesticus* (◇), *Streptopelia chinensis* (□), *Corvus splendens* (○) and *Bubulcus ibis* (△). Percentage absorption is measured by estimating the unabsorbed glucose and deducting the same from the initial.

An absorption rate of 400 mg/100 gm of body weight/hour had been reported in chick<sup>9</sup> and this rate is more than twice that recorded in rats of similar size and over four times that found in the dog.<sup>10</sup>

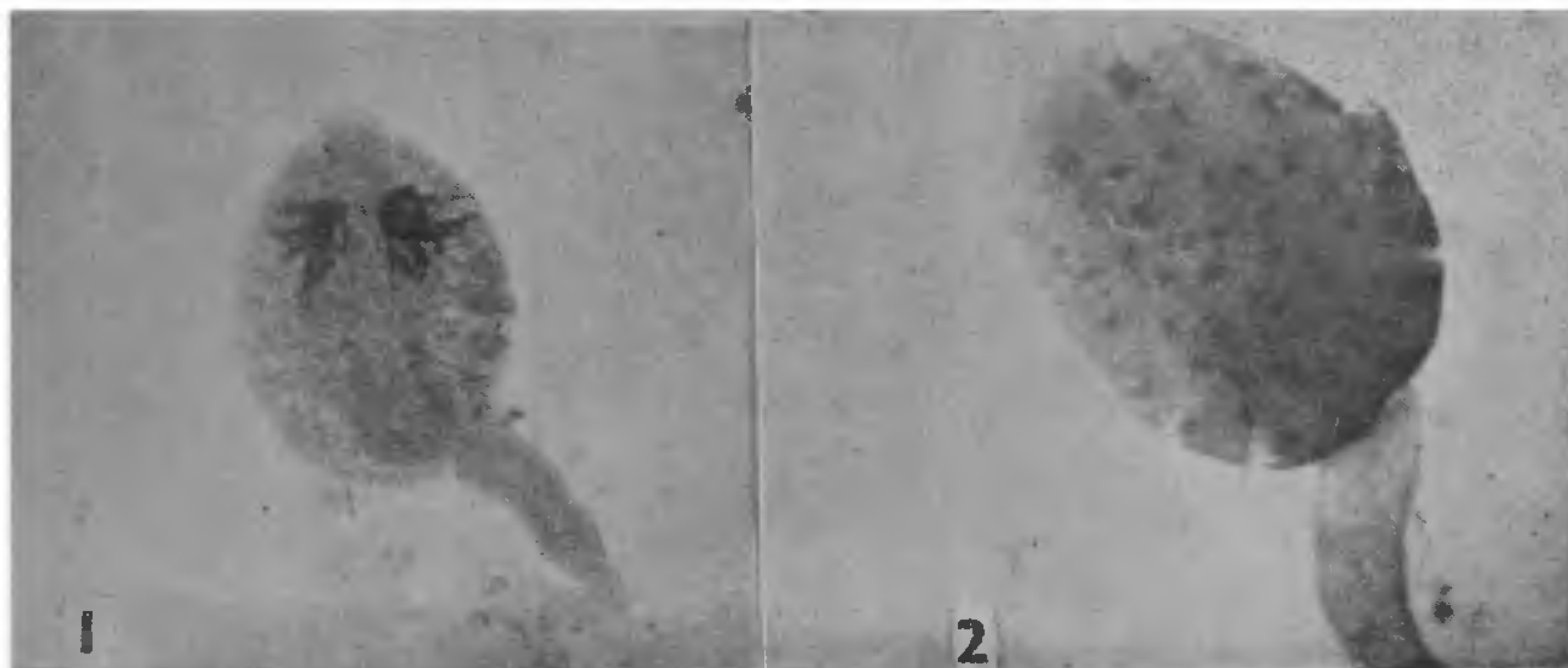
The ileum is undoubtedly the chief site of absorption. The rate of absorption of glucose is different in birds belonging to different feeding groups. This indicates that feeding habit has a bearing on the capability of the gut tissue in the absorption of the products of enzymic hydrolysis. The absorption rate is highest per mg of gut tissue in per unit time in an omnivore and this is in a descending order in a graminivore, a scavenger, being lowest in a carnivore. The lower oesophagus has so long been denied of any absorptive function but our observations establish that this part of gut is capable to absorb glucose at a quite high rate. The sparrow is unique in the respect that no amylase is produced in the lower oesophagus, but a considerable amount of glucose is absorbed here. Our findings further suggest that the absorptive capacity is inversely proportional to the size of the animal.

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#### A REPORT ON THE EMISSION OF CERCARIAE PIGMENTATA FROM PILA GLOBOSA (SWAINSON)

THE common South Indian apple snail, *Pila globosa* (Swainson) generally plays no host to larval digenetic trematodes.<sup>1</sup> But very recently Ganapathi and Hanumantha Rao<sup>2</sup> reported cercarial emission from this snail collected at or near Waltair. These cercariae happen to be of echinostomes,



FIGS. 1-2. Amphistome cercariae of *pigmentata* type. Note the eye spots and stellate melanophores,  $\times 75$ .

In the course of a general survey of fresh-water and amphibious gastropod hosts or vectors of Rayalaseema, one specimen of *Pila globosa*, collected from Kodur area, of Rajampet Taluk of Cuddapah District, began to emit pigmented cercariae which could easily be observed with the naked eye. Since the number emitted were few, the specimen was opened and tissues teased and washed in water. Quite a good number of cercariae could be obtained, this way, from the digestive gland. Through microscopic examinations, these have been identified as amphistome cercariae of the *pigmentata* type.<sup>3</sup> The stellate melanophores and the eye spots with spherical lens-like bodies could easily be observed (Figs. 1 and 2). Although the occurrence of adult amphistome in the gut of this snail has previously been reported,<sup>4</sup> there appears to be no previous report of amphistome cercariae from this particular snail. Thus it appears that, besides the usual host *Lymnea luteola* of these parts, *Pila globosa* under certain unknown circumstances can play host not only to echinostome cercariae as reported by Ganapathi and Hanumantha Rao but also to amphistome cercariae.

This research has been financed in part by a grant made by the United States Department of Agriculture under P.L. 480. The authors are thankful to Dr. (Mrs.) P. Padmavathi, College of Veterinary Science, A.P. Agricultural University, Tirupati, for helping in identification of the cercariae.

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#### THE REPRODUCTIVE CYCLE OF THREE DECAPOD CRUSTACEANS FROM THE SOUTH-WEST COAST OF INDIA

THE paucity of information on the reproduction of invertebrates of the west coast of India necessitated detailed investigation on the reproductive cycles of as many representative forms as possible. In crabs, the usual method employed to determine the breeding period had been plotting of the percentage of ovigerous females against time, which provided only an incomplete picture of the sequence of events that take place during the long and often drawn-out breeding season in the tropical waters. Therefore, it was instructive and advantageous to follow the gonad index method. The ratio between the gonad size and body weight bears a relation to gonad development and gonad maturity during different times of the year. This has already been reliably established in fishes,<sup>1</sup> molluscs and echinoderms<sup>2</sup> and crustaceans.<sup>3,4</sup> In the present investigation the reproductive cycles of three species of decapod crustaceans, viz., *Uca annulipes* (Latreille), *Portunus pelagicus* (Linnaeus) and *Metapenaeus affinis* (Milne-Edwards), have been studied employing the gonad index method.