remedy. The bark of the tree was referred to one of us (T. B. P.) for systematic investigation by Dr. I. M. Patel from Gujarat State. Alcoholic extractives of the bark have been found to possess tumour inhibitory activity against transplantable rat carcinosarcoma and rat Yoshida sarcoma (ascites).

Petroleum ether extract of the bark of *S. febrifuga* has yielded a sterol (I), m.p. 135-36°, compound (II), m.p. 257° (decomp.) and compound (III), m.p. 203-04°. Carbon-hydrogen analysis of the compound (III) and its molecular weight (470) by mass spectrum indicated for it the molecular formula, $C_{27}H_{34}O_7$ (Found : C, 69·0 ; H, 7·18 ; $C_{27}H_{34}O_7$ requires C, 68·9 ; H, 7·3%). The compound (III) formed 2 : 4-dinitrophenylhydrazone, m.p. 266-67° (decomp.) (Found : N, 8·25 ; $C_{33}H_{38}N_4O_{10}$ requires N, 8·6%). Mild alkali hydrolysis of (III) yielded an acid, m.p. 254-55° and reduction of (III) in alcoholic solution with Raney Nickel as catalyst, gave a product, m.p. 196-97°.

The UV absorption of (III) showed λ^{E}_{max} at 212 mμ (log ε 3·87). IR spectrum of (III) exhibited bands at $\nu_{max.}$ 3120, 3080, 1500 and 872 cm^{-1} (furan); 1740, 1050 and 1020 cm^{-1} (methyl ester, δ-lactones) and 1720 cm^{-1} (cyclohexanone). NMR spectrum of (III) showed presence of four methyl groups : two of them angular methyls as singlets at 53 cps (0·88 δ) and at 58 cps (0·96 δ); while other two gem-dimethyls appearing as singlets at 64 cps (1·06 δ) and at 73 cps (1·21 δ) respectively. Methyl ester appears as a singlet at 224 cps (3·70 δ). The protons of the furan ring appear as singlet (1 H) at 385 cps (6·41 δ) and broad singlet (2 H) at 445 cps (7·41 δ).

The chemical reactions and spectral data of the compound (III) indicated it to be methyl angolensate (ring B-seco tetranor-tetracyclic tri-terpene)[2,3] occurring in several species of the family 'Meliaceae'.[4] The melting points of the 2 : 4-dinitrophenylhydrazone and the reduction product of (III) closely agreed with those of the corresponding derivatives (m.p. 261-64° and m.p. 186-89° respectively) of the methyl angolensate, reported by earlier workers.[2] The identity of the compound (III) was confirmed by mixed melting point with an authentic sample of methyl angolensate which remained undepressed and by their superimposable IR spectra.

Ether extract of the bark of *S. febrifuga* has yielded a steryl glycoside, m.p. 290-95° (decomp.),

We are indebted to Dr. W. R. Chan, University of West Indies, Jamaica, for a generous sample of methyl angolensate, and to Dr. I. M. Patel, Junagadh, Gujarat State, for the supply of 'Rohini' bark.

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ABSORPTION OF GLUCOSE IN THE GASTROINTESTINAL TRACT OF BIRDS

Knowledge on the absorption of the products of enzymatic hydrolysis in the alimentary canal of the vertebrates is restricted only to certain mammals and a few birds. Active absorption occurs mostly in the ileal part of the small intestine, and in lesser amounts in the duodenum.

Experiments on absorption mostly involve administration of the requisite amounts of different sugars wtth food and recovery of the unabsorbed sugars from the gut at a desired interval.

Rate of absorption of sugar in rat and pigeon[1] is essentially similar but glucose is absorbed at a rapid rate in chicken than the same in rats.[2] More recent studies[3,4] on glucose absorption, however, reveal that the absorptive capacity of chick with regard to sugars closely resembles that of pigeon[1] and mammal.[5] It is held that the optimal concentration for glucose absorption is somewhere between 0·75 M and 0·2 M[2].

Absorption of glucose from oesophagus, crop or lower oesophagus has never been known to occur. To ascertain the absorptive capability of the different zones of the gut and also to find the relationship, if any, between the feeding habit[6] and rate of absorption, experiments were carried on adult healthy ether-anaesthetised *Passer domesticus* (omnivore), *Streptopelia chinensis* (graminivore), *Bubulcus ibis* (carnivore) and *Corvus splendens* (scavenger) following ligation technique.[7]

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 anaethetised 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 biocarbonate 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.[8] Results are expressed in Fig. 1.

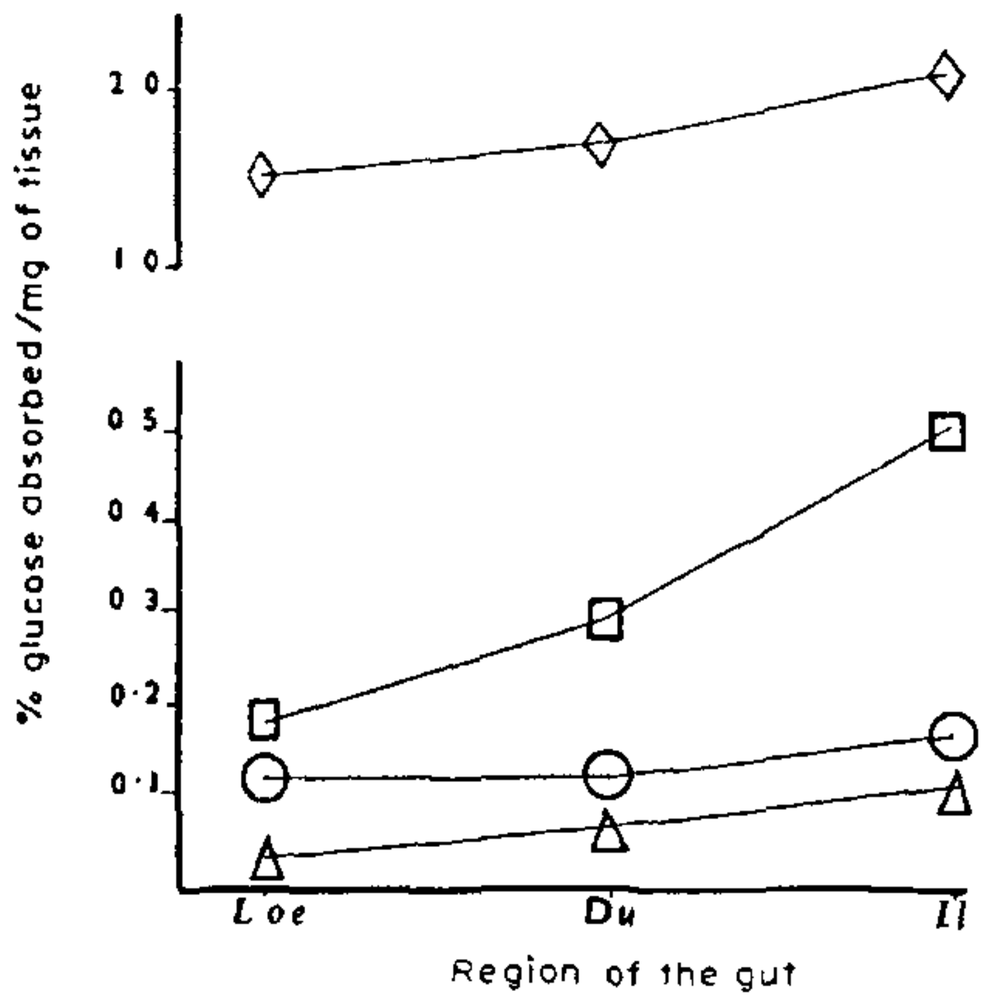

FIG. 1. Absorption of glucose per mg of tissue in 30 minutes by different regions of the gut, expressed in terms of per cent at 37°. One ml gassed (95% O_2, 5% CO_2), warmed (37°), Krebs-Ringer bicarbonate solution at 0·1% glucose concentration is injected in each ligated segment of lower oesophagus (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[9] and this rate is more than twice that recorded in rats of similar size and over four times that found in the dog.[10]

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.[1] But very recently Ganapathi and Hanumantha Rao[2] reported cercarial emission from this snail collected at or near Waltair. These cercariae happen to be of echinostomes.