and histidine observed in batch 2 is attributable to the increased recovery of amino acids from the samples irradiated at 0.5 Mrd compared to the unirradiated control samples and not to damage caused by the higher levels of irradiation.

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Thiamin Balance in the Sheep

By R. M. BARR, R. F. E. AXFORD, R. A. EVANS and W. C. EVANS. (*Department of Biochemistry and Soil Science, University College of North Wales, Bangor, Caerns., U.K.*)

The development of an automatic device for sampling digesta leaving the abomasum of the sheep (Axford, Evans & Offer, 1971) has made it possible to study the thiamin balance across the stomach of a 37 kg Welsh Mountain wether fitted with re-entrant duodenal cannulae. Previous studies (e.g. Kon & Porter, 1953; Phillipson & Reid, 1957) have been limited to concentrations, as simultaneous measurements of flow rates were not reported.

This sheep was fed on a constant pelleted ration supplying 2 mg of thiamin daily, supplemented by the intra-ruminal infusion of increments of thiamin. At the basal level the daily outflow of thiamin equalled the inflow. Increases in the thiamin intake by infusion produced smaller increases in the rate of passage of thiamin from the abomasum, indicating the absorption or destruction of about half the additional thiamin. Although the rate of thiamin outflow from the abomasum was never found to be more than the intake, extrapolation of the regression line relating passage of thiamin from the abomasum to total daily intake indicated an endogenous synthesis of about 1 mg of thiamin at zero intake. The concentration of thiamin in the duodenal contents increased proportionately with intake, which agrees with the previous studies referred to. Thiamin determinations were also carried out on representative samples of faeces and urine and indicated that excretion of thiamin by these routes was virtually unaffected by varying the intake.

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Growth of *Pseudomonas reptilivora* on Glycine

By D. E. HALL* and G. W. CROSBIE. (*Department of Biochemistry, University of Hull, Hull HU6 7RX, U.K.*)

We are interested in C₁-unit biogenesis in micro-organisms growing on carbon sources from which glycine can be derived by metabolic pathways not involving serine. As part of this study we have been investigating the growth of *Pseudomonas reptilivora* (N.C. 8906) on a simple inorganic salts medium containing either glycine or an N-methylated derivative thereof as sole carbon and energy source.

Extracts of glycine-grown cells have been found to possess high activities, as compared with extracts of succinate-grown cells, of serine dehydratase and of an enzyme system (the 'glycine enzyme') catalysing the pyridoxal phosphate- and tetrahydropteroylglutamate-dependent oxidation of glycine to CO₂, ammonia and N⁵N¹⁰-methylene-tetrahydropteroylglutamate (e.g. see Sagers & Gunsalus, 1961; Pitts & Crosbie, 1962; Bull & Woods, 1963). Serine hydroxymethylase activities are also increased, although only about fourfold, during growth on glycine. Glycine oxidase and glyoxylate carboxylase are not detectable and malate synthase activity is uniformly low in extracts of glycine-grown cells and of succinate-grown cells.

It is concluded that the pathway of utilization of glycine by *Ps. reptilivora* involving conversion into serine and thence into pyruvate is analogous to that reported by Jones & Bridgeland (1966) for *Arthrobacter globiformis* and different from the pathway in *Pseudomonas A* (*Ps. acidovorans*) involving glyoxylate and tartronic semialdehyde (Callely, Trudgill & Dagley, 1961).

The observation that the methylene carbon of [2-¹⁴C]glycine is utilized as the sole quantitative source of C₁ residues in thymine (methyl group), serine (C-3) and purines (C-2) is consistent with this conclusion.

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* Present address: Fisons Pharmaceuticals Ltd., Bawell Road, Loughborough, Leics., U.K.