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Fucose in Urine of Fasting Human Subjects

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By quantitative t.l.c. (Bell & Talukder, 1970) we observed that urines from fasting (12–15h) human volunteers invariably contained, besides galactose, glucose and fructose, the additional free monosaccharides ribose, xylose and arabinose. In experiments using a differential stain to reveal the sugar spots we found that fucose occupied the same chromatographic position as xylose. We could find no evidence of any chromatographic system in which fucose did not coincide with at least one of the accompanying urinary sugars (cf. Partridge, 1948).

One of us (M.Q.-K.T.) has now devised a rapid (65min) t.l.c. system that clearly separates fucose (R_F 0.72) from all other monosaccharides of 'fasting' urine (R_F 0.55 to 0.10); the method can be used quantitatively over the range 5–80 μ g. The plates are coated with Kieselguhr G (Merck) buffered with 0.15M- NaH_2PO_4 and developed with a mixture of ethyl acetate, methanol, butan-1-ol and water (16:3:3:2, by vol.). Sugars are revealed by spraying with aq. 90% acetic acid containing 1g of 4-aminobenzoic acid, 0.6g of sulphosalicylic acid (Bell, 1966) and 2g of SnCl_2 . After heating at 110°C for 20min hexoses show up yellow and pentoses pink, enabling separation to be confirmed. Areas containing the 6-deoxy sugars are scraped off, extracted with 90% acetic acid containing 2% (w/v) of SnCl_2 and the extinction read at 370nm, when a stoichiometric relationship holds between E 0.04 (5 μ g) and 0.6 (80 μ g) for each sugar.

Results from normal subjects and some pathological subjects will be presented.

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The Metabolism by Rats of Phenylmercury Acetate

By J. W. DANIEL and J. C. GAGE. (*Imperial Chemical Industries Ltd., Industrial Hygiene Research Laboratories, Alderley Park, Cheshire, U.K.*)

We have previously shown (Daniel & Gage, 1969; Daniel, Gage & Lefèvre, 1971) that methoxyethylmercury salts are rapidly degraded by the rat to yield mainly ethylene and inorganic mercury. This is probably connected with their lability *in vitro* in the presence of acid and cysteine (Weiner, Levy & Mudge, 1962). Phenylmercury salts are stable under these conditions, yet they are known to be rapidly metabolized in the rat to yield inorganic mercury (Gage, 1964).

The metabolism of phenylmercury in the rat has been studied after the subcutaneous administration of [^{14}C]phenylmercury acetate. About 85% of the radioactivity appeared in urine within 4 days and about 5% in the breath. Most of the mercury (50–60%) was excreted in faeces, with about 12% in urine.

About 2.5% of the dose appeared in urine as unchanged phenylmercury. Most of the radioactivity in urine was associated with sulphate and glucuronic acid conjugates of phenol. It seems likely therefore that phenylmercury is hydroxylated before cleavage of the carbon-mercury bond; if breakdown before hydroxylation occurred it is probable that substantial amounts of benzene would have been detected in expired air. Hydroxyphenylmercury salts are unstable *in vitro* in acid-cysteine, so it is possible that the liberation of inorganic mercury *in vivo* is not catalysed by an enzyme system.

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C₂₉-Carboxylic Acid Intermediates of Cholesterol Biosynthesis in Rat Liver

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Cholesterol biosynthesis from lanosterol in liver involves oxidative demethylation at C-14 and C-4 for which the sequence $\text{RCH}_3 \rightarrow \text{RCH}_2\text{OH} \rightarrow \text{RCHO} \rightarrow \text{RCOOH} \rightarrow \text{RH} + \text{CO}_2$ has been suggested (Olson, Lindberg & Bloch, 1957). Carboxylic acids are the only intermediates in this demethylation sequence to have been trapped (Miller & Gaylor,