The reagent solution was mixed from 75 ml stock solution, 125 ml 5.0 *M* NaOH, and 300 ml water. The sample was added to about 80 ml 0.01 *M* NaOH, 10 ml reagent solution was added with vigorous shaking, and the mixture diluted to 100 ml with 0.01 *M* NaOH. Absorbancies were determined in 1-cm cells with a Beckman DU spectrophotometer at 480 mμ.

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Uridine diphosphoglucose in banana fruit

UDPG is an intermediate in the synthesis of sucrose by enzyme systems extracted from higher plants[1-3] and has been identified in seedlings of mung bean (*Phaseolus aureus* Roxb.)[4] and in leaves of sugar beet (*Beta vulgaris* L.)[5]. The isolation of this compound from banana fruit, in which marked synthesis of sucrose occurs after harvest[6,7], is reported in this communication.

Banana fruit (*Musa Cavendishii* L.) were obtained from wholesale fruit merchants before commercial ripening treatment. 600 g of peeled fruit tissue was extracted with ethanol by blending (1 ml ethanol/g fresh wt.). The slurry was filtered at 1° and adjusted to pH 7 with ammonia. This was filtered again, and the filtrate passed through a column (1 × 15 cm) of Dowex-1 resin (Cl form). Nucleotides were then displaced from the column with 0.1 *N* HCl. This solution was neutralized with ammonia and nucleotides adsorbed on charcoal (British Drug Houses Ltd.) previously activated by boiling. The charcoal was then eluted with 50% ethanol, which was

Abbreviation: UDPG, uridine diphosphoglucose.

evaporated to dryness *in vacuo*. The residue was dissolved in a little water and examined by paper chromatography, using the following solvent systems: (1) propan-1-ol–ammonia–water (6:3:1, v/v)[8]; (2) ethanol–1 *M* ammonium acetate buffer, pH 3.7 (5:2, v/v)[9]; (3) ethanol–1 *M* ammonium acetate, pH 7.5 (5:2, v/v)[9]; (4) isobutyric acid–ammonia–water (66:1:33, v/v)[10]; (5) propan-2-ol–conc. HCl (170:44, v/v) plus water to 250 ml[11]; (6) pyridine–ethyl acetate–water (8:2:1, v/v)[12].

A sample of the solution containing the nucleotides was run as a line in solvent 3. Two predominant lines were found, one with an R_F value equal to that of uridine 5′-phosphate, the other equal to UDPG. The lines were eluted from two chromatograms and combined. Samples of each line run on chromatograms in other solvents also had R_F values equal to uridine 5′-phosphate (solvents 1, 2, 4 and 5) and UDPG (solvents 2 and 4). The identification of UDPG was confirmed as follows: (1) A sample run on a chromatogram in a strongly alkaline solvent (solvent 1) was hydrolysed to a compound with R_F value equal to that of uridine 5′-phosphate[9]. This was confirmed by eluting the compound and running on chromatograms in solvents 2, 4 and 5. (2) After heating a sample at 100° for 15 min in 0.01 *N* HCl[9] the R_F value of the hydrolysate was equal to that of uridine diphosphate in solvent 4. When another sample of this hydrolysate was run on a chromatogram in solvent 6, and developed[13] with $AgNO_3$–NaOH, compounds with R_F value equal to glucose and galactose (trace only) were found. Thus the sample of UDPG isolated appears to contain a little uridine diphosphogalactose, which is not readily separated from UDPG by paper chromatography[4].

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