E-19

ACTIVITY OF SUCROSE PHOSPHORYLASE IN *PSEUDOMONAS SACCHAROPHYLA* AND *ACETOBACTOR XYLINUM*

K. Balasubramanium, Sumedha Wijerathna *and* **Pushpa Kandiah**
(*Department of Biochemistry, Faculty of Medicine, University of Colombo, Colombo 8*)

Sucrose phosphorylase breaks down sucrose to glucose-1-P and fructose. The equilibrium of this reaction favours the breakdown of sucrose. This study is undertaken to purify the sucrose phosphorylase from *Pseudomonas saccharophyla* and *Acetobactor xylinum* and modify its kinetics so as to favour sucrose synthesis. If this could be achieved sucrose phosphorylase could be used commercially to synthesize sucrose from starch.

SECTION E

Sucrose phosphorylase enzyme was obtained from *Pseudomonas saccharophyla* (obtained from Stockholm) and *Acetobactor xylinum* (obtained from Industrial Development Board, Moratuwa).

The two bacteria were grown according to the method of "Doudoraff" *P. saccharophyla* and *A. xylinum* reached their late log phases in 55–60 hr and 48–50 hr respectively. The maximum yields of bacterial cells were obtained by innoculating them in ½ log phase and by harvesting them in late log phase.

The cultures were centrifuged at 16,000 g for 20 mins and cells were distrupted by using ultrasonicator for 25 seconds in 0–5 C. After sonication suspensions were centrifuged at 16,000 g for 20 mins. The enzyme was assayed in the supernatant by reduction of NADP using the enzyme phosphoglucomutase and glucose–6–P dehydrogenase. The crude enzyme extracts were concentrated by using UM 2 ultrafilter and centrifugation.

The activities of both phosphorylases of *A. xylinum* and *P. saccharophyla* were lost when stored frozen for about 2 days. Their activities were unaffected when stored at 5°C for 2 months. The enzyme is being purified by affinity chromatography and kinetic studies are in progress.