

## **Invertase of *Woodfordia fruticosa* (Malitta); purification and its properties**

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### **ABSTRACT**

Fermented Ayurvedic drugs known, as "Arishta" are very popular in Sri Lanka. During the preparation of Arishta, fermentation is generally set off by the addition of flowers of *woodfordia fruticosa* (Lythraceae, Malitta) into a decoction of plant material supplemented with sugar. It has been reported that hydrolysis of sucrose during this fermentation is mainly due to the endogenous invertase present in the above flowers. In this communication, we describe the purification and properties of Invertase of *woodfordia fruticosa* (Malitta).

Enzyme was extracted from surface sterilized *Woodfordia* flowers, fractionated with ammonium sulphate, purified by Sepharose 4B gel filtration and DEAE Cellulose chromatography. Enzyme activity was assayed by Nelson's Method.

The enzyme was purified 507.8 fold with a 5.32% recovery. M.W. of the enzyme was ~ 110 kDa on SDS-PAGE and ~ 250 kDa on Sepharose 4B gel filtration. Similar to other invertases this enzyme also could be a glycoprotein which contain ~ 50% of carbohydrate of its molecular mass.

Above purified enzyme was used to study the following properties of the enzyme.

Kinetics of the product formation was continued over 5 min and was linear for an initial period of 3 min. Optimum pH and temperature were 2.9 - 3.5 and 37<sup>0</sup>C respectively. At a temperature above 40<sup>0</sup>C enzyme activity slowly declines and almost inactivated around 80<sup>0</sup> C. Approximate Km of the enzyme for sucrose was 160mM. Further, it was found that urea and fructose were competitive inhibitors, where as mercury was a noncompetitive inhibitor and manganese, semicarbazide hydrochloride, N-bromosuccinamide, zinc and cadmium were mixed inhibitors for the enzyme.

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