

INTRODUCTION

2.1. INTRODUCTION

Life is characterised by the enormous number of complex, although magnificently co-ordinated, chemical reactions which are constantly going on within the individual cells of an organism. It is astonishing that inspite of the many kinds of reactions taking place at any given moment, there is no molecular collision. Instead, cells contain means for regulating the diverse physico-chemical processes. The compounds regulating this metabolism are called enzymes.

Growth and development of a living organism are dependent upon many factors among which hormones and enzymes are the major ones. The role of different plant growth substances on growth and development of an important crop plant, *Sechium edule*.Sw. has been dealt in the first part of this thesis. The subsequent part is centred upon the function of some enzymes namely acid and alkaline phosphatases, L-*myo*-inositol-1-phosphate synthase and fructose-1, 6-bisphosphatase during growth and development of the experimental plant. These enzymes have immense importance in connection with some prime metabolic pathways.

Again, growth and development of any biological system is characteristically associated with the production and utilisation of several sugar moieties as sugar(s) serves as a very important source of energy required for the various metabolic activities of the living organisms; the energy being derived as a result of their degradation. The sugar or, to be more significantly, glucose status of a living organism is reamarkably controlled by a number of enzymes directly or indirectly, among which fructose-1, 6-bisphosphatase is a prime one. In biological systems, this enzyme is available in two isoenzymic forms viz., soluble (gluconeogenic) and particulate (photosynthetic). In this connection, it is needless to mention that the occurrence of the particulate form is only confined to green plants. Therefore, in an angiosperm, *Sechium edule*, studies on the particulate form of this enzyme may be considered as an important one from the biochemical as well as physiological stand points where there is a question of interrelationship between glucose metabolism and crop productivity.