INTRODUCTION

While the development of an organism is programmed by its genetic information and on its environment, plants are particularly sensitive to environmental factors of light. The foremost importance of light as the ultimate source of energy for living organisms is well recognised. Green plants besides harbouring the photosynthetic process, have evolved mechanisms dependent on seasonal variations in duration of daylength, and alternation of light and dark period as a time signal for onset of various morphogenetic events such as germination, dormancy, reproduction and synchronization of metabolic activity. All light signals for such developmental processes are perceived by a pigment, termed phytochrome. The molecular mechanism by which Pfr (active form of phytochrome) translates the physical stimuli into physiological function or into a morphological event is still unresolved.

Since the development of a plant is primarily the consequence of orderly changes in the enzyme complement, the studies on Pfr control of enzymatic machinery may lead to an answer to the understanding of photomorphogenesis and with this view Pfr regulation of many enzymes have been investigated (see Schopfer, 1977). However, in most of cases, work has been carried out only with a cause and effect relationship, only in case of phenylalanine ammonia-lyase intensive research was done to decipher the control at the molecular level.
The objective in the present investigation was to study the mechanism of action of phytochrome in controlling the activity of the enzyme peroxidase. The work was carried out to decipher the level of control by phytochrome and possible intermediate factors whose level or modulation could affect peroxidase activity. The investigation of regulation of peroxidase activity can also shed light on how phytochrome may participate in photomorphogenetic events by regulating an enzyme which has been shown to be associated with differentiation processes by controlling hormonal level in plants.