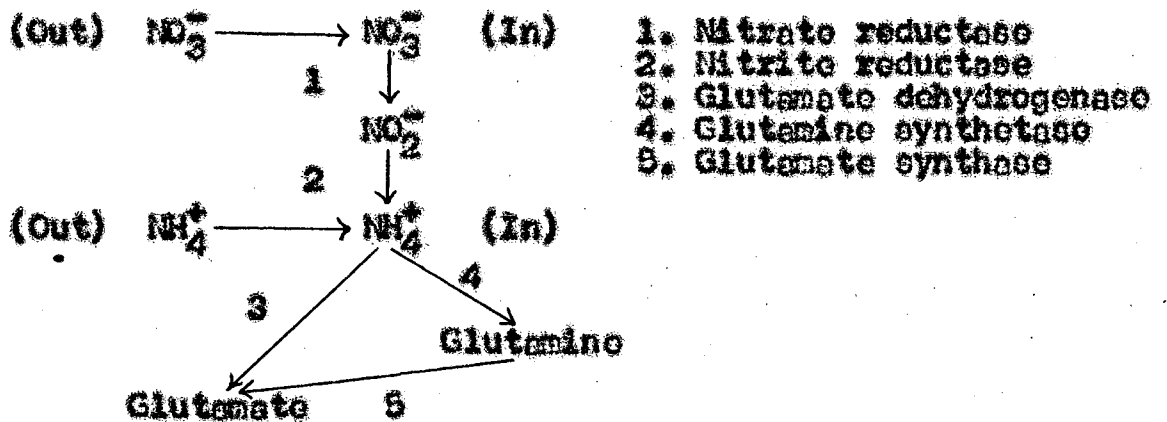


## INTRODUCTION

Nitrate reductase being the first enzyme in the nitrogen assimilating pathway - if nitrogen is taken up in the form of nitrate - plays a very important role in the life of plants. Nitrate reductase is a molybdoenzyme and is substrate inducible (Beever and Hageman, 1969; Hewitt, 1975; Srivastava, 1980). The other external factors, which affect the level of this enzyme, are ammonium, light, temperature, hormones, nitrite and carbon dioxide.

Ammonium, the end product of nitrate reduction, has been reported to control the level of NR. Currently, there has been a great deal of interest on improving the yield and protein content of crop plants by altering the level of NR. Therefore, the study of regulation of NR level especially by ammonium (which is an important fertilizer), will offer vital clues as to how this can be brought about.

Normally ammonium is assimilated via GDH or GS/GOGAT pathway to form glutamate according to the following scheme:



Ammonium has been reported to repress NR in some systems (Joy, 1969; Stewart, 1972a), whereas in some others, it stimulates the NR activity (Ingle, 1966; Schrader *et al.*, 1967). Earlier work from this laboratory showed that ammonium stimulates NR activity in pea buds (Sihag *et al.*, 1978) and in wheat leaves (Vijayaraghavan *et al.*, 1979b).

The present study was undertaken to understand the mechanism of enhancement of NR by ammonium in shoot tips of wheat (*Triticum aestivum*).