INTRODUCTION

Algae are of fundamental importance to all life, since they are the major primary organic producers in aquatic habitats and contribute to soil fertility. Because of their position at the base of the food chain, any adverse effect on algal flora due to the application of toxic chemicals will also result in decreasing productivity at higher levels. The wide spread use of the herbicides in the modern agriculture might affect adversely soil algal flora.

Many reports available indicate interaction between soil algae and herbicides, including effects of herbicides on algal growth, photosynthesis, nitrogen fixation, biochemical composition, and metabolic activities (**Singh and Tiwari, 1988a, b; Mishra and Pandey, 1989; Bhunia *et al.*, 1991; El-Sheekh *et al.*, 1994; Caux *et al.*, 1996**), as well as degradation and removal of herbicides by algae (**Stratton, 1984**). Although these organisms may not necessarily be killed by herbicides applications, their physiology could be affected such that they function less efficiently (**Maule and Wright, 1983**). In most reports, the investigators have studied herbicide toxicity showing that higher doses were toxic to the algal cells in particular concentrations of nutrients. However, reports are lacking generally on the toxic effects of herbicides in presence of different levels of nutrients in culture medium, thus it is desirable to evaluate algal growth and survival under herbicides stress in presence of different nutrients levels.

Therefore, the aim of this study is to elucidate effects of some rice field herbicides on algal flora both in field and laboratory.

Field study was intended to follow the effect of thiobencarb, pendimethalin and pretilachlor herbicides widely used for controlling weeds of rice fields in Egypt upon species composition and frequency of an algal flora of an Egyptian rice field compared with control one during rice growth season.

Laboratory study was intended to investigate firstly, toxicity of thiobencarb, pendimethalin and simazine herbicides to growth and photosynthesis of *Protosiphon* green alga and *Anabaena* blue-green alga purely isolated from an Egyptian rice field. Secondly, studying the interaction effect of nitrate and phosphate nutrients as environmental factors to herbicides toxicity on both algae.