INTRODUCTION

After a decline of about two centuries phytotherapy is now experiencing a revival of both public and professional interest. The professions who ridiculed medical herbalism as ineffective and superstitious old wives are once again turning to nature in an attempt to discover methods and materials free from the undesirable side effect frequently experienced with the modern chemically synthetic drugs. This is emphasized by the worldwide increasing demand for herbs, the wider and variable applications of herbs, as well as, the rediscovery of some plants been in use centuries ago.

Echinacea is a good example of medicinal plants which were neglected for many years, but later, it got the interest and importance it deserves. Echinacea plant is indigenous to Kansas, Nebraska and Missouri, U.S.A. For a very long time it has been considered as one of the most important medicinal plants used by the American Indians. Traditionally, it is used to prevent and treat the common cold and many other viruses and bacterial infections. It is used as an antibiotic, antiseptic, immune stimulator, digestive, and blood purifier.

Comprehensive studies revealed the anti-inflammatory, antiviral, antibacterial, oncolytic and insecticidal properties of the plant. Extracts from Echinacea species are widely used for the unspecific enhancement of the immune system. Only in Germany, more than 200 pharmaceutical preparations originated from Echinacea plant are on the markets.

Numerous investigations have been carried out regarding the chemistry and pharmacology of the plant extracts. However, almost nothing was done from the physiological and agricultural points of view.
Chemical and pharmacological studies carried out, so far, on this plant revealed the involvement of different chemical groups, such as alkamides, polysaccharides and caffeic acid derivatives, in the immunostimulating effect of this plant. Synthesis, translocation, accumulation and the factors affecting these processes are still questionable.

In a previous study for M.Sc. degree, the needed studies for cultivation and acclimatization of this plant in Egypt were carried out, they revealed the great potential of its cultivation under local conditions.

The present study aimed to verify the effects of some growth regulators, amino acids and micro-nutrients on the growth, yield and active ingredients of *Echinacea purpurea* plant.

From the scientific point of view, the present study aimed to throw the light on the physiology of *Echinacea purpurea* plant regarding synthesis and accumulation of the biologically active constituents and the factors affecting these processes. However, from the practical point of view, the obtained results will lead to some practices that may help in increasing the productivity of this plant.