ABSTRACT

In order to determine the influence of chemical and bio-fertilizers on growth and chemical constituents of datura (*Datura innoxia* Mill.) plants, an experiment was conducted in 2010 – 2011 at Research Farm, Faculty of Agriculture, Fayoum University, Demo Province, Fayoum Governorate, Egypt. A factorial layout within randomized complete block design with 3 replications was used. Chemical nitrogen fertilizer levels included 0, 3, 6 and 9 g N/plant, the nitrogen fertilizer (provided) from ammonium nitrate source (33% pure N) and "Nitrobien" (bio-fertilizer); containing one strain of *Azotobacter chroococcum,* levels included 0, 5, 10 and 15 cm^3/plant.

The obtained results showed that plant height, main stem diameter, number of branches and leaves per plant, fresh and dry weights of different parts *i.e.* roots, stems and leaves were increased by application different rates of mineral and bio-fertilizers or their combinations.

All treatments alone or in combinations caused an increase in yield parameters *i.e.* fruits number per plant, number and weight of seeds per fruit and weight of 100-seeds, as compared with the control.

Also, application of mineral and bio-fertilizers or their combinations increased chlorophyll a, b, total carotenoids, total carbohydrates, N, P, and K contents, compared with the control.

Datura plants treated with mineral and bio-fertilizers or their combinations increase the total alkaloids content in different plant parts during different stages, as compared to untreated plants.

Leaves are the most organs contains the highest value of total alkaloids content along different stages, except fruiting stage which had the lowest values in this respect as compared to the other plant parts. These findings proof that, those alkaloids are formed in the roots and then translocate finally to the leaves during these stages.