

ABSTRACT

Effects of treatment of “Golden Harvest” with different concentrations on growth and yield of sunflower (*Helianthus annuus* L.) cultivars S-278 and 63A90 were investigated in pot experiment at Botanic Garden, GC University, Lahore during 2005 growth season. “Golden Harvest” used in the present experiment is a formulation containing nutrients and hormones in varying amounts obtained from a multinational company “Stoller Pakistan (Pvt.) Limited”. This formulation contains; zinc (4%), magnesium (1%), manganese (1%), Copper (1%), cytokinin as kinetin (0.009%), gibberellic acid (0.005%), indole-3-butyric acid (0.005%), and other inert ingredients. There were 4 treatments of Golden Harvest viz., T1 (0.12%), T2 (0.24%), T3 (0.48%) and T4 (0.96%). A control (T0) was also used to compare the experimental plants. Each treatment was replicated 6 times.

Seeds of sunflower cultivars were grown with normal garden soils and then seedlings were allowed to complete their entire life cycle in 30 cm diameter pots. Through the active growth period of plants, weekly growth assessment was carefully recorded. A mid-season harvest was taken at the prime of vegetative growth of plants in order to ascertain effects of Golden Harvest on biomass.

Best growth in two sunflower cultivars relative of control occurred in highest treatment concentration i.e., T4 with 50-60% increase in plant height, 45-56% increase in stem diameter, 56-85% increase in leaf production, and delayed senescence as compared to control. There was slight decline in the magnitude of stimulation in T3 and T2 treatments than T4, while T1 treatment remained almost similar to control. Fresh and dry weights of plant were also higher in T4 (36-52% fresh, and 59-70% dry weight) along with more chlorophyll relative of control. Similarly, seeds per plant were increased by 19.9-23.8%, seed weight per plant by 20-24%, in T4 (0.96%) treatment. Straw dry weight per plant was 27-48% higher than control due to healthier growth of plants in the initial growth period in both the cultivars. It can now be stated that various other concentrations of Golden Harvest may be applied to other crops as well before recommendation to agricultural sector to enhance the yield of crops.