

**EFFECT OF UNICONAZOLE CONCENTRATION AND ITS
APPLICATION METHOD ON GROWTH, FLOWERING
AND CARBOHYDRATE CONTENT OF
Mirabilis jalapa, L. PLANTS**

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V. SUMMARY

The present investigation was carried out during the two successive experimental seasons of 2007 and 2008 on Four O'clock plant (*Mirabilis jalapa*) grown in an open field of a commercial nursery, at Damanshour El-Beheira governorate, Egypt. This study was carried out to assess the response of *Mirabilis jalapa* "local variety" to the treatment with Uniconazole solution in an attempt to increase the landscape value of the plant. Two ways of applications were used, i.e. foliar spray and drench, and six concentrations of Uniconazole (0, 20, 30, 40, 50 and 60 ppm) were used with each way of application and 77-days-old uniform plants were utilized.

Clay pots of 30 cm diameter which contained the treated plants were randomly arranged in the first and second seasons to three replicates in a split plot experiment under natural day length. The two chemical application methods represented the main plots, whereas the six uniconazole concentrations resembled the sub-plots. Number of treatments in each replicate was 12 and six plants were used for each treatment per replicate.

The significant obtained results can be summarized as follows:

A- Vegetative growth:

1. In both seasons Uniconazole concentrations from 20 to 60 ppm. applied as a soil drench reduced the plant height compared with the control, the general effects of uniconazole concentrations exhibited the same effect and the drench soil method was significantly more able to reduce the plant height than the foliar spray one.
2. The numbers of internodes was significantly increased at the foliar spray treatments from 40 to 60 ppm and from 30 to 60 ppm in the first and second seasons, respectively compared with the control and the same effect was noticed at the soil drench treatments from 20 to 60 ppm and by the general effect of uniconazole concentrations in both seasons. The soil drench method markedly increased the internode numbers compared with the foliar spray in the both seasons.
3. The foliar spray treatments of 50 and 60 ppm in the first season and those of 40 to 60 ppm. in the second one and the soil drench treatments from 20 to 60 ppm. in both seasons significantly retarded the internode length compared with the control. Similar results were observed by uniconazole concentrations from 20 to 60 ppm. as a general effect and the soil drench method markedly decreased the internode length compared with the foliar spray method in both seasons.
4. Comparing with the control, the rates of 50 and 60 ppm and that of 60 ppm as a foliar spray in the first and second seasons significantly reduced the branching. uniconazole rates from 20 to 60 ppm gave the same effect as a general effect and the soil drench markedly reduced the branching compared with the foliar spray in both seasons.

5. Leaf area was significantly decreased at the spray treatments at 50 and 60 ppm. in the first season and at 40, 50 and 60 ppm. in the second one. Similar results were detected at the soil drench treatments from 30 to 60 ppm and at 60 ppm in the first and second seasons, respectively. The general effects of the concentrations were significant in both seasons and led to reduced leaf area.
6. Shoot dry weight was markedly decreased at treatments of the foliar spray from 20 to 60 ppm in the first and second seasons, with the exception of 40 and 60 ppm. in the second season. Similar results were obtained by the soil drench using the rates from 30 to 60 ppm in the first season and from 40 to 60 ppm in the second one. All rates from 20 to 60 ppm resulted in the first and second seasons a significant reduction in both seasons.

B- Flowering characterizations:

1. The foliar spray treatments of 40, 50 and 60 ppm in the first season and that of 30 ppm in the second season significantly delayed the flowering compared with the control. The same effect was recorded by the soil drench treatments from 20 to 60 ppm in the first season and from 40 to 60 ppm. in the second one. The general effect of uniconazole rates in both seasons led to significant delaying. The spray method significantly accelerated the flowering compared with the soil drench in both seasons.
2. Number of flowers per plant per day was significantly decreased at the foliar spray treatments of 30, 40 and 50 ppm in the first season and those from 20 to 60 ppm in the second one as compared with the control. All uniconazole rates from 20 to 60 ppm in the first season and those of 30, 40 and 50 ppm in the second season decreased the flower numbers/plant/day as compared with the control.

B- Chemical Analysis:

1. Uniconazole rates of 50 and 60 ppm. significantly increased the chlorophyll "a" by both application methods in the first season, while in the second one similar results were reordered at the treatments from 30 to 60 ppm as a foliar and those from 40 to 60 ppm as a drench. Uniconazole rates from 30 to 60 ppm significantly increased the leaf chlorophyll "a" compared with the control as a general effect of the rates.
2. The treatments from 30 to 60 ppm in both seasons compared with the controls during the first season. While, in the second one these effects were recorded at 30 to 60 ppm as a foliar spray and at 60 ppm as a soil drench.
3. The leaf carotenoids content was significantly decreased in the first season at the foliar spray of 50 and 60 ppm and at the soil drench of 40, 50 and 60 ppm, while in the second season all treatments from 20 to 60 ppm either as a foliar or as a drench markedly decreased the leaf carotenoids compared with the control. The general effect of concentrations cleared that concentrations from 20 to 60 ppm in the first and second seasons, respectively, significantly reduced the carotenoids compared with the control. The drench soil method markedly decreased the carotenoids content as compared with the foliar spray on in both seasons.

4. Uniconazole concentrations from 20 to 60 ppm. either applied as a foliar spray or as a soil drench and their general effect exhibited significant reduction in the first and second seasons the reducing sugar content during both seasons, as compared with the control. The soil drench method significantly decreased the reduced sugar in the first season , compared with the foliar spray.