Effects of Plant Extracts on Morphological Characteristics and Productivity of Tomato Planted in Greenhouses

Eng. Ahlam Ahmed Hussein Al-Obaidi

ABSTRACT:

The study was conducted during the seasons of 2010-2011 and 2011-2012 in one of the greenhouses belonging to vegetables Farmers in Tartus (head beach); so as to determine the influence of spattering some of planting extracts (*Portulaca oleraceae*(P), *Marva parviflora*(M), *Opinuta ficus indica*(C) and the commercial hormone,(flower-set); on the Vegetative and flowering growth , the yield of tomatoes and fruits quality characteristics. as well as , to find alternatives instead of the commercial hormone which is used a lot by the farmers to increase the blossoms ratio. they have been spattered on three types of tomatoes (OURJOUAN , AL-BADIAH and the SWEETY). The experiment has been planned according to a design of the whole Randomized Complete Block Design (RCBD) (factorial experiment) and with the number of treatments (81), Duncan's multiple range test was used to compared the Treatment means were. on the probable level of 5%, we have got the following results :

1- Vegetative Growth:

the treatment of spattering extract (P+M+C) in two categories of OURJOUAN and SWEETY caused a significant increase in stem length, in giving the highest rate to length reached (290.00 and 301.00) cm respectively for two seasons, of OURJOUAN ,(284.33 and 295.66) cm for two seasons of SWEETY .As for the AL-BADIAH, the (M) and (P+M+C) treatments has been surpassed length average (296.66)cm for both of it, first season. As for the second season, does not differ treatments (M , C , P+M , P+C , P+M+C) significant from each other and surpassed the control . About leaves number of OURJOUAN , does not differ all the treatments significant from each other both seasons , As for AL-BADIAH , the first season does not differ all the treatments significant from each other .As the second season its differ (M) and (P+M+C) significant from other treatments in giving the highest rate of leaves number(17.30) for both of it . As for first season of SWEETY , the(P+M+C) has given leaves number(19.93), and differ significant from other treatments .As for second season which does not differ significant from each other but they surpassed the control. In leaves area, the control treatment has been surpassed ,than all treatments in two categories of OURJOUAN and SWEETY for two seasons. As for AL-BADIAH

the (M) treatment has given the highest rate, which does not differ from (control) treatment for two seasons.

The treatment of spattering extract (P+M+C) in two categories of OURJOUAN and AL-BADIAH caused a significant increase in efficiency of Photosynthesis for first and second season reached (2134.66 and 3121.26) cm^2 \ kg respectively in type of OURJOUAN. And (2318.20 and 2889.63) cm^2 \ kg respectively in type of AL-BADIAH. As for the SWEETY the treatment of spattering extract (M) caused increase in efficiency of Photosynthesis, which does not differ significant from (P+C)(M+C) treatments for the first season. As for second season all the treatments which does not differ significant from each other but they surpassed the control.

About categories compare the type AL-BADIAH has been surpassed than categories of OURJOUAN and SWEETY, in stem length and efficiency of Photosynthesis. While the type SWEETY has been surpassed than categories of OURJOUAN and AL-BADIAH, in leaves number and leaves area.

2- Flowering Growth:

The spraying from all planting extracts, was not effected significantly on the types of tomatoes (OURJOUAN , AL-BADIAH and the SWEETY); for both seasons in (the number of days to flowering first plant , flowering 50% from plants, set the first flower on plant ,set 50% from plant 's flowers). The treatment of spattering extract (P+M+C) has been surpassed than all treatments, in two categories of OURJOUAN and SWEETY in giving the highest rate, to flower's clusters , the number of flowers and ratio of flower-set with rate (11.80 and 11.86) cluster,(121.73 and120.26)flower\plant and (%94.50 and %97.53) respectively for two seasons in type of OURJOUAN and (13.00 and 12.40) cluster,(114.13 and 120.86) flower\plant and (%95.03 and %94.76) respectively for two seasons in type of SWEETY . As for the AL-BADIAH, the (M) treatment has given the highest rate for all those categories reached; (12.40 and 12.80) cluster , (121.03 and 114.13) flower\plant and (%92.66 & %90.23) respectively for two seasons. those categories which does not differ significant from each other with number of flower's clusters and the number of flowers, but the type OURJOUAN has given the highest rate for ratio of flower-se compare AL-BADIAH and SWEETY.

3- The yield:

The treatment of spattering extract (P+M+C) in two categories of OURJOUAN and SWEETY caused a significant increase in (the early and total yields , yield per plant **,** fruit's number and mean of fruit weight) for two seasons , and has

been surpassed than all other treatments. As for the AL-BADIAH, the (M) treatment caused a significant increase in the yield and its components for two seasons, and has been surpassed than all other treatments. the type SWEETY has been surpassed than categories of OURJOUAN and AL-BADIAH, in giving the highest rate to the early and total yields , yield per plant. While the type OURJOUAN has been surpassed than categories of SWEETY and AL-BADIAH, in fruit's number. And there is not significant effect between categories in mean of fruit weight for two seasons.

4- Height and Diameter of Fruit:

the treatment of spattering extract (M+C) of OURJOUAN, caused a significant increase, in mean of fruit height for the first season. As for second season, the treatment of spattering extract (P+M+C) has been surpassed than all treatments ,in giving the highest mean in fruit height. As for the AL-BADIAH, the (P) and (M+C) treatments has been surpassed in giving the highest mean in fruit height for the first season. While the spraying from all planting extracts, was not effected significantly in this adjective for the second season. Also for the SWEETY the first season, all the treatments which does not differ significant in this adjective, except surpassed the control treatment . As for the second season does not differ all the treatments significant from each other , in this adjective. The treatment of spattering extract (P+M+C) has been surpassed than all treatments of OURJOUAN for the first season in fruit's diameter adjective. While for the second season all the treatments which does not differ significant in this adjective, except surpassed the control treatment. In categories of AL-BADIAH and SWEETY does not differ, all the treatments significant from each other, in fruit's diameter adjective for the first season. As for the second season the treatment of spattering extract (P+M+C) has been surpassed than all treatments in both categories. The category OURJOUAN has been surpassed than categories of SWEETY and AL-BADIAH, in giving the highest mean in fruit height. While there isn't significant effect between categories in fruit's diameter adjective for two seasons.

5- Fruits Quality Characteristics:

As for the OURJOUAN, the (P+M) treatment caused a significant increase, in fruit firmness, and given the highest rate for this Adjective reached (2.218)kg\cm^2 for the first season. While for the second season, the treatment of spattering extract (M+C) has given the highest rate for this Adjective reached (2.166)kg\cm^2. As for the category AL-BADIAH the spraying of (M) treatment caused a significant increase, in fruit firmness as much as(2.050 and 2.146)kg\cm^2 in both seasons, respectively. Treatment of spattering extract (P+M+C) has been surpassed than all treatments of SWEETY for the first

season and caused a significant increase in fruit firmness adjective, it was (2.964)kg\cm^2.While for the second season the (M) and (P+M+C) treatments caused a significant increase in given the highest rate for fruit firmness as much as (2.162)kg\cm^2 in both treatments. As for the ratio of acidity the spraying from all planting extracts, was not effected significantly on the types of tomatoes (OURJOUAN , AL-BADIAH and the SWEETY); for both seasons in this adjective. The treatment of control has given the highest rate (Total Soluble Solids) for all categories in both seasons. About Vitamin C the spraying, from all planting extracts, was not effected significantly on the OURJOUAN, for both seasons. As for the AL-BADIAH, the (P+M+C , P+C , C, M) treatments has been surpassed in giving, the highest mean in Vitamin C for the first season. And (P+M+C , C , M) treatments has been surpassed in giving, the highest mean in Vitamin C for the second season. As for the SWEETY the (P+M+C , P+M , M+C, C, M) treatments has been surpassed in giving, the highest mean in Vitamin C for the first season. And the second season does not differ all the treatments significant from each other , in this adjective. The category SWEETY has been surpassed than categories of OURJOUAN and AL-BADIAH, in giving the highest mean in fruit firmness and Total Soluble Solid in both seasons. While The category OURJOUAN has been surpassed than categories of SWEETY and AL-BADIAH, in giving the highest mean in Vitamin C. And there isn't significant effect between categories in the ratio of acidity for two seasons.