Effect of some Agricultural Treatments on *Rosmarinus officinalis* plant.

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Abstract

This investigation was carried out aiming to study the effect of two cultivation methods (plots, rows) interaction with different distances (20, 40 and 60 cm) on first experiment and different water regimes (50, 70 and 100% field capacity) on second experiment on the growth, yield, chemical composition and volatile oil contents of *Rosmarinus officinalis* L. plant. The first experiment: The results showed that planting methods and distance treatments had a significant effect on vegetative growth, chemicals composition and Essential oils percentage per plant. The highest values of all recorded characters of the growth, chemical constituents and essential oil percentage were obtained with the wider space between the plants (60 cm.) followed by medium space (40cm) then narrow space (20cm.) except fresh weight yield per feddan, dry weight yield per feddan, oil yield per feddan and oil composition, the narrow space (20cm.) recorded the highest values than wider space. It was also found that planting in rows in most of the results was better than planting in plots, except for the length of the plant and the number of branches, the cultivation in plots was the best in the results. The second experiment: the results revealed that differences treatments of field capacity increased the growth parameters of rosemary plant in the two seasons. The use of field capacity at 100% achieved the highest values on all studied parameters of vegetative growth and some chemical composition, except the total carbohydrates% in both seasons. On contrary, the use of 50% FC scored the best values for total carbohydrates% and essential oil productivity in both seasons. Consequently, it is preferable to treat rosemary plants with FC at 100 % in order to achieve the highest levels of vegetative growth parameters. On the other hand, it is possible to treat rosemary plant with 50% FC to obtain the highest essential oil productivity.

Keywords: *Rosmarinus officinalis*., planting methods and distances, water regimes. chemical compositions and essential oil productivity

Contents

LIST OF TABLES

LIST OF FIGURES