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Al-Muthanna University

College of Sciences

Department of Biology

**The effect of *Pseudomonas fluorescens* and Salicylic acid and their synergistic effect in growth, yield and some physiological characteristics of two varieties of *Triticum aestivum* L. plant**

A Thesis Submitted in Partial Fulfillment of the Requirements for the Master’s Degree of Science in Biology

By

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**Abstract**

The experiment was conducted in a greenhouse at department of biology , College of Sciences ,Al Muthanna University during the grown season in December 2020-2021. the concentrations of salicylic acid were used in the study at (0,50, 100 and150) ppm and *pseudomonas fluorescens* at (105, 106 ,107 ) c.f.u./ml on growth and some physiological of the two varieties of *Triticum aestivum* L. included Abu-graib and Abaa 99 the project was carried out according to the completely random design (C.R.D) in three replicates. The results indicates the significant effect of *pseudomonas flourescens* and salicylic acid at for the concentration *P*. *fluorescens* (106) c.f.u./ml (FP2) for a SA concentration of 100 ppm (SA2) ), variety Abu-graib was more response than Abaa 99 on vegetative growth parametars like leaf area (26.42 ) cm2, Dry shoot , root (1.239 , 0.610) g ,plant height (64.50 ) cm ,root length (60.13) cm, fresh weight of shoot and root (4.55, 1.20) g respectively , and the physiological parameters like chlorophyll a,b.a/b,a+b and carotene in addtionally the other parameters like relative water content 90.63%, membrane stability 10.18% , ion content of nitrogen 1.190% potassium 2.370 %Magnesium 1.023% calcium 0.236% phosphate 0.518%, carbohydrate (55.553) mg/g, protein (7.427) mg/g, the permeability of ion like Na+,k+ salicylic acid was showed positive effects in reducing of permeability of K+ and Na+ ions 8.75%.while (SA1+PF1) reducing of permeability of Na+ ions 17.383%. and the yield parameters like hundred grains weighed (3.104) g,number of tillers/plant (3.875 ) and also single effect *pseudomonas flourescens* and SA on *Triticum aestivum* . however, according to find, exogenous application of *Pseudomonas flourescens* and SA is improve vegetative growth parametars, physiological, yield aspects especially when combined.