

-Abstract-

The experiment was conducted in a greenhouse at Al Muthanna University, department of biology, College of Education for Pure Sciences during the grown season in December 2018. The aim was to study the effect of salicylic acid at (0,100, 200 and 300) ppm apply at (seed soaking, foliar spraying , seed soaking & foliar spraying) on growth some physiological and anatomical aspects of *Petunia* namely *P.hybredia* and *P.niglofera*. the project was carried out according to the completely random design (C.R.D) in three replicates. The results indicates the significant effect of salicylic acid at the lower concentration (100 ppm) when use to seed soaking & foliar spraying *P.hybredia* was more influence than *P.niglofera* on vegetative growth aspect like plant height (30.80 cm),root length (24.30 cm), fresh weight of shoot and root (27.40, 9.20 g)respectively , and the physiological aspect like chlorophyll a,b.a/b,a+b and carotene beside to the other aspect like relative water content (183.28)%, membrane stability (68.40 %) , ion content of nitrogen (10.357mg/g) potassium (5.00 mg/g) sodium (3.833 mg/g) calcium (10.5mg/g) phosphate (1.060mg/g), carbohydrate (88.33 mg /g), protein (64.73mg/g), the permeability of ion like Na⁺,k⁺ salicylic acid was show positive effects in reducing of permeability of K⁺ and Na⁺ ions (30.267 , 4.617) while the result of anatomical side show that the salicylic acid increased the leaf area (15.333cm²)and the number of stomata (55200) .The least significant effect of the salicylic acid at concentrations (300 ppm) for seed soaking treatment share in *P.niglofera* for the growth axial like plant height (13.60 cm), root length (15.867cm), fresh weight of shoot(16.55g) and root (0.36 g), and the physiological aspect like chlorophyll a,b.a/b,a+b and carotene plus the other aspect like relative water content (46.15)%, membrane stability (25.50%) ,mineral content the nitrogen (1.16mg/g), potassium (1.66mg/g),sodium(1.050mg/g)calcium(3.1mg/g),phosphate(0.42mg/g) carbohydrate (44.00mg/g) protein(8.8mg/g) while the permeability of ion like (Na⁺,K⁺) salicylic acid was show significant effects in reducing the K⁺ and Na⁺ (98.9, 39.667). The results of anatomical side shows that the salicylic acid increased the leaf area (5.00 cm²) and the numbers of stomata (18960).