

**Table S3.** The effects of different combinations of different fertilizers (mineral fertilizer MIN, dried algae biomass ALG, and biochar BIO) and salinity levels on the soil parameters during the early growth stage (7 weeks) of “Rehan” cultivar. EC $\mu$ S/cm= electric conductivity, TN ( $\mu$ g N/g soil [mg/kg] = total nitrogen, P ( $\mu$ g PO<sub>3</sub><sup>2-</sup>/g soil [mg/kg] = phosphate, T = top soil sample, B = bottom soil sample, R = rhizosphere soil sample, mix = mixture soil sample, sig. = significance of the test.

| Soil parameters        | Fertilizers + Salinity Concentrations (EC) |                     |                    |                     |                   |                    |                     |                   |                     |                    |                     |                     | Sig.   |
|------------------------|--|---------------------|--------------------|---------------------|-------------------|--------------------|---------------------|-------------------|---------------------|--------------------|---------------------|---------------------|--------|
|                        | MIN  |                     |                    |                     | ALG               |                    |                     |                   | BIO                 |                    |                     |                     |        |
|                        | 0  | 4                   | 8                  | 16                  | 0                 | 4                  | 8                   | 16                | 0                   | 4                  | 8                   | 16                  |        |
| Soil water content [%] | 9.88<br>(2.03)                             | 9.23<br>(2.03)      | 7.93<br>(1.64)     | 8.53<br>(1.70)      | 13.20<br>(0.77)   | 13.00<br>(2.16)    | 13.03<br>(1.37)     | 15.09<br>(1.03)   | 9.67<br>(2.77)      | 6.19<br>(1.41)     | 7.14<br>(2.40)      | 10.02<br>(4.31)     | 0.340a |
| pH for mix             | 6.88<br>(0.06)                             | 7.17<br>(0.14)      | 7.27<br>(0.08)     | 7.45<br>(0.32)      | 7.56<br>(0.14)    | 7.74<br>(0.06)     | 7.47<br>(0.13)      | 7.53<br>(0.25)    | 7.18<br>(0.14)      | 7.15<br>(0.01)     | 7.04<br>(0.04)      | 7.21<br>(0.17)      | 0.000b |
| EC for mix             | 802.00<br>(32.92)                          | 1437.67<br>(657.61) | 701.33<br>(187.52) | 1244.80<br>(864.26) | 282.00<br>(69.68) | 721.00<br>(177.00) | 1351.67<br>(318.47) | 590.67<br>(75.09) | 1308.33<br>(726.22) | 737.67<br>(106.88) | 2133.33<br>(257.09) | 2123.00<br>(864.40) | 0.000b |
| TN for mix             | 77.71<br>(13.97)                           | 118.29<br>(14.71)   | 86.88<br>(14.43)   | 39.00<br>(22.63)    | 40.06<br>(1.30)   | 37.62<br>(6.82)    | 38.68<br>(4.49)     | 52.53<br>(18.38)  | 157.85<br>(32.07)   | 58.08<br>(22.86)   | 114.45<br>(8.40)    | 132.33<br>(52.89)   | 0.000a |
| P for mix              | 336.00<br>(30.68)                          | 44.34<br>(11.40)    | 36.95<br>(3.48)    | 47.73<br>(21.25)    | 124.71<br>(31.57) | 77.89<br>(31.39)   | 94.92<br>(23.81)    | 46.50<br>(26.69)  | 13.58<br>(3.99)     | 4.63<br>(0.57)     | 4.14<br>(1.34)      | 7.75<br>(1.96)      | 0.000b |
| pH for T               | 7.23<br>(0.03)                             | 7.26<br>(0.01)      | 7.61<br>(0.29)     | 8.03<br>(0.46)      | 6.87<br>(0.13)    | 6.67<br>(0.08)     | 6.76<br>(0.09)      | 6.49<br>(0.19)    | 7.97<br>(0.06)      | 8.46<br>(0.09)     | 8.67<br>(0.20)      | 8.67<br>(0.15)      | 0.000b |
| EC for T               | 57.80<br>20.02                             | 40.13<br>1.32       | 75.70<br>23.01     | 88.97<br>40.68      | 69.20<br>(20.10)  | 235.57<br>(120.11) | 270.23<br>(95.90)   | 236.37<br>(29.24) | 40.23<br>(3.71)     | 41.87<br>(7.72)    | 135.30<br>(31.72)   | 126.37<br>(22.17)   | 0.000a |
| TN for T               | 4.22<br>(4.63)                             | 13.96<br>(2.92)     | 28.71<br>(12.05)   | 21.22<br>(11.89)    | 27.04<br>(4.26)   | 34.95<br>(15.58)   | 42.56<br>(11.73)    | 31.86<br>(3.25)   | 3.75<br>(1.03)      | 10.88<br>(1.19)    | 35.66<br>(24.44)    | 21.94<br>(7.91)     | 0.000a |
| P for T                | 686.45                                     | 605.40              | 412.07             | 479.06              | 431.50            | 261.85             | 367.25              | 217.21            | 307.04              | 214.63             | 224.51              | 241.96              | 0.000b |

|                 |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |               |
|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------|
|                 | (318.00)            | (94.87)             | (28.01)             | (88.57)             | (61.64)             | (8.12)              | (14.28)             | (12.59)             | (47.51)             | (33.84)             | (54.14)             | (84.91)             |               |
| <b>pH for B</b> | 7.43<br>(0.14)      | 7.50<br>(0.11)      | 7.53<br>(0.12)      | 7.99<br>(0.25)      | 8.36<br>(0.20)      | 8.53<br>(0.09)      | 8.67<br>(0.03)      | 8.06<br>(0.28)      | 7.89<br>(0.03)      | 8.10<br>(0.05)      | 8.12<br>(0.07)      | 8.00<br>(0.03)      | <b>0.000b</b> |
| <b>EC for B</b> | 1065.33<br>(225.44) | 1233.94<br>(810.55) | 1267.00<br>(620.94) | 1513.67<br>(743.25) | 197.23<br>(24.01)   | 591.33<br>(64.77)   | 734.33<br>(67.65)   | 1369.67<br>(404.13) | 1549.33<br>(505.74) | 1332.67<br>(194.83) | 1717.33<br>(400.34) | 2087.00<br>(259.05) | <b>0.000b</b> |
| <b>TN for B</b> | 90.00<br>(0.00)     | 282.45<br>(32.86)   | 183.01<br>(107.56)  | 121.68<br>(72.62)   | 73.00<br>(20.62)    | 55.35<br>(6.66)     | 58.51<br>(4.97)     | 57.78<br>(8.10)     | 282.45<br>(32.86)   | 276.83<br>(88.95)   | 234.10<br>(31.73)   | 311.58<br>(19.36)   | <b>0.000b</b> |
| <b>P for B</b>  | 357.36<br>(66.83)   | 465.33<br>(111.02)  | 724.51<br>(299.96)  | 818.73<br>(476.11)  | 3381.42<br>(865.79) | 1978.21<br>(752.97) | 2904.43<br>(404.73) | 1065.33<br>(376.01) | 179.55<br>(71.72)   | 200.65<br>(90.41)   | 406.25<br>(54.75)   | 429.12<br>(99.93)   | <b>0.000a</b> |
| <b>PH for R</b> | 7.74<br>(0.01)      | 7.87<br>(0.04)      | 7.94<br>(0.16)      | 8.36<br>(0.19)      | 6.49<br>(0.32)      | 6.35<br>(0.62)      | 6.42<br>(0.22)      | 6.93<br>(0.24)      | 22.23<br>(34.03)    | 8.77<br>(0.09)      | 8.63<br>(0.08)      | 8.63<br>(0.04)      | <b>0.000b</b> |
| <b>EC for R</b> | 385.00<br>(85.00)   | 338.40<br>(160.95)  | 526.67<br>(67.91)   | 898.00<br>(590.00)  | 712.30<br>(402.68)  | 271.43<br>(135.27)  | 248.63<br>(124.54)  | 121.67<br>(85.17)   | 431.33<br>(146.73)  | 284.30<br>(116.53)  | 842.67<br>(163.59)  | 879.00<br>(226.90)  | <b>0.000a</b> |
| <b>TN for R</b> | 59.96<br>(27.14)    | 68.95<br>(14.02)    | 87.57<br>(5.57)     | 43.87<br>(38.58)    | 30.81<br>(36.35)    | 42.88<br>(13.83)    | 55.60<br>(10.14)    | 88.12<br>(43.54)    | 352.03<br>(304.44)  | 49.67<br>(16.00)    | 107.41<br>(9.58)    | 88.94<br>(11.48)    | <b>0.000b</b> |
| <b>P for R</b>  | 274.53<br>(64.29)   | 817.99<br>(263.73)  | 538.33<br>(142.80)  | 590.60<br>(310.54)  | 282.13<br>(178.43)  | 335.38<br>(263.76)  | 422.68<br>(149.21)  | 147.79<br>(93.01)   | 175.36<br>(77.59)   | 132.75<br>(51.86)   | 166.68<br>(108.90)  | 131.05<br>(53.46)   | <b>0.000a</b> |

Note: p-value are displayed in bold script when  $p \leq 0.05$

Different letters in significant column indicate (a) One Way Analysis of Variance (ANOVA), (b) Kruskal–Wallis the value represent mean (standard deviation) in categories column