**Supplemental data**

**Figure S1.** Diameter of first order lateral roots of two rapeseed varieties under 0 mM and 100 mM NaCl treatments. Vertical bars indicate standard error of mean of four replicates against each variable. Different letters indicate significant difference among the genotype × treatment interactions.

**Figure S2.** Length of third order lateral roots of two rapeseed varieties under 0 mM and 100 mM NaCl treatments. Vertical bars indicate standard error of mean of four replicates against each variable. Different letters indicate significant difference among the genotype × treatment interactions.

**Figure S3.** Diameter of third order lateral roots of two rapeseed varieties under 0 mM and 100 mM NaCl treatments. Vertical bars indicate standard error of mean of four replicates against each variable. Different letters indicate significant difference among the genotype × treatment interactions.

**Figure S4.** Density of third order lateral roots of two rapeseed varieties under 0 mM and 100 mM NaCl treatments. Vertical bars indicate standard error of mean of four replicates against each variable. Different letters indicate significant difference among the genotype × treatment interactions.

**Figure S5.** Density of root hairs originated at first order lateral roots of two rapeseed varieties under 0 mM and 100 mM NaCl treatments. Vertical bars indicate standard error of mean of four replicates against each variable. Different letters indicate significant difference among the genotype × treatment interactions.

**Figure S6.**  Diameter of root hair originated at third order lateral roots of two rapeseed varieties under 0 mM and 100 mM NaCl treatments. Vertical bars indicate standard error of mean of four replicates against each variable. Different letters indicate significant difference among the genotype × treatment interactions.

**Supplementary Appendix 1.** Breakdown of equation 1 for estimating the potential root surface area of component roots.

Estimated surface area of main root axis = πDmLm  
1st order= axes + root hairs = πDmLma1n1πD1L1 + πDmLma1n1πD1L1 arh1nrh1πDrh1Lrh1  
2nd order= axes + root hairs = πDmLma1n1πD1L1 a2n2πD2L2 + πDmLma1n1πD1L1 a2n2πD2L2 arh2nrh2πDrh2Lrh2  
3rd order= axes + root hairs = πDmLma1n1πD1L1 a2n2πD2L2 a3n3πD3L3 + πDmLma1n1πD1L1 a2n2πD2L2 a3n3πD3L3arh3nrh3πDrh3Lrh3

Here,  
Dm and Lm are the diameter and length of main axis respectively.  
Di and Li are the diameter and length of ith order lateral root respectively.  
Drhi and Lrhi are the diameter and length of root hair at ith order lateral root respectively.  
ai is the proportion of the length of roots that bear ith order lateral roots.   
arhi is the proportion of the length of ith order lateral roots on that bears root hairs.   
ni is the density of ith order lateral roots.  
nrhi is the density of root hair at ith order lateral roots.

**Estimated root surface area**

= πDmLm + πDmLma1n1πD1L1 + πDmLm a1n1πD1L1 arh1nrh1πDrh1Lrh1 + πDmLm a1n1πD1L1 a2n2πD2L2 + πDmLm a1n1πD1L1 a2n2πD2L2 arh2nrh2πDrh2Lrh2 + πDmLm a1n1πD1L1 a2n2πD2L2 a3n3πD3L3 + πDmLm a1n1πD1L1 a2n2πD2L2 a3n3πD3L3arh3nrh3πDrh3Lrh3

= πDmLm (1+ a1n1πD1L1 + a1n1πD1L1 arh1nrh1πDrh1Lrh1 + a1n1πD1L1 a2n2πD2L2 + a1n1πD1L1 a2n2πD2L2 arh2nrh2πDrh2Lrh2 + a1n1πD1L1 a2n2πD2L2a3n3πD3L3 + a1n1πD1L1 a2n2πD2L2 a3n3πD3L3 arh3nrh3πDrh3Lrh3)

= πDmLm (1+ a1n1πD1L1 (1 +arh1nrh1πDrh1Lrh1 + a2n2πD2L2 +a2n2πD2L2 arh2nrh2πDrh2Lrh2+a2n2πD2L2 a3n3πD3L3 + a2n2πD2L2 a3n3πD3L3 arh3nrh3πDrh3Lrh3))

= πDmLm (1+ a1n1πD1L1 (1 +arh1nrh1πDrh1Lrh1 + a2n2πD2L2 (1 +arh2nrh2πDrh2Lrh2+a3n3πD3L3 +a3n3πD3L3 arh3nrh3πDrh3Lrh3)))

= πDmLm (1+ a1n1πD1L1(1 +arh1nrh1πDrh1Lrh1 + a2n2πD2L2 (1 +arh2nrh2πDrh2Lrh2+a3n3πD3L3 (1 +arh3nrh3πDrh3Lrh3))))