

Supplementary materials

Comparing the effects of deficiency of N and P on physiology and growth for fast- and slowly-growing provenances of *Fraxinus mandshurica*

Xingtang Zhao, Zhang Liu, Lei Yu, Xintong Ji, Kaixiang Gao, Fansuo Zeng, Yaguang Zhan

Table S1. Primers used for qRT-PCR.

Gene Name	Description	Primer-Forward	Primer-Reverse
<i>NRT2.1</i>	High-affinity nitrate transporter	5'-CCCGACTGATACCACGGCGAA-3'	5'-AGGATTGGCAAAGGAAAAGAGC-3'
<i>NRT2.4</i>	high affinity nitrate transporter 2.4-like	5'-GAATGGAACGAGGATGAGAAAGA-3'	5'-TGGTTTGGTGTGAATGTGGC-3'
<i>NRT2.5</i>	high affinity nitrate transporter 2.5	5'-CCCTCCTTCCCATCATTCTGT-3'	5'-AAGATTTCACCCACCCGCT-3'
<i>NRT2.7</i>	high affinity nitrate transporter 2.7	5'-GTCCACCTCCTTCATTTCATCGC-3'	5'-CCCCAACATTAGCCCAACCAG-3'
<i>NIA2</i>	nitrate reductase [NADH] 2	5'-ACCCAGGCGGGACAGACAGC-3'	5'-GTGGACCCCCTTGCGGTAAATC-3'
<i>AAP3</i>	amino acid transporter	5'-ATTGTCAACCCCTTTTCGCCT-3'	5'-GGGATTGGGACTTGGATTCTT-3'
<i>PHT1-3</i>	inorganic phosphate transporter 1-3	5'- GATAGGACACCAAAACCTGGAAC-3'	5'-AGCCATAACACCCTTTGGAGTC-3'
<i>PHT1-4</i>	inorganic phosphate transporter 1-4	5'-GGTTGGGTGACAAAATGGGTAG-3'	5'-CAAATGTAGTCTGCCTGTGGGG-3'
<i>PHO1;H1</i>	phosphate transporter PHO1 homolog 1	5'- TTGATGAAGGACATAAAAGCCACC-3'	5'-TTCCACTGCCCTCTTCTAATGAC-3'
<i>PHO1;H9</i>	phosphate transporter PHO1 homolog 9-like	5'-CTTCAGCGGGCTAACGAGTC-3'	5'-ATTCCTCTGCCTCCATTTTCAC-3'
<i>PHT2-1</i>	inorganic phosphate transporter 2-1	5'-CGAAGAATCAGAGCCCCCAG-3'	5'-CAACAATCCCGAACCCTCCC-3'
<i>TU</i>	Tubulin	5'-AGGACGCTGCCAACAACCTTT-3'	5'-TTGAGGGGAAGGGTAAATAGTG-3'
<i>AVT1</i>	vacuolar amino acid transporter 1	5'-CCAGAACCAGATAATGGCTACCC-3'	5'-TGAAATGGCGTGCGAGTGAT-3'

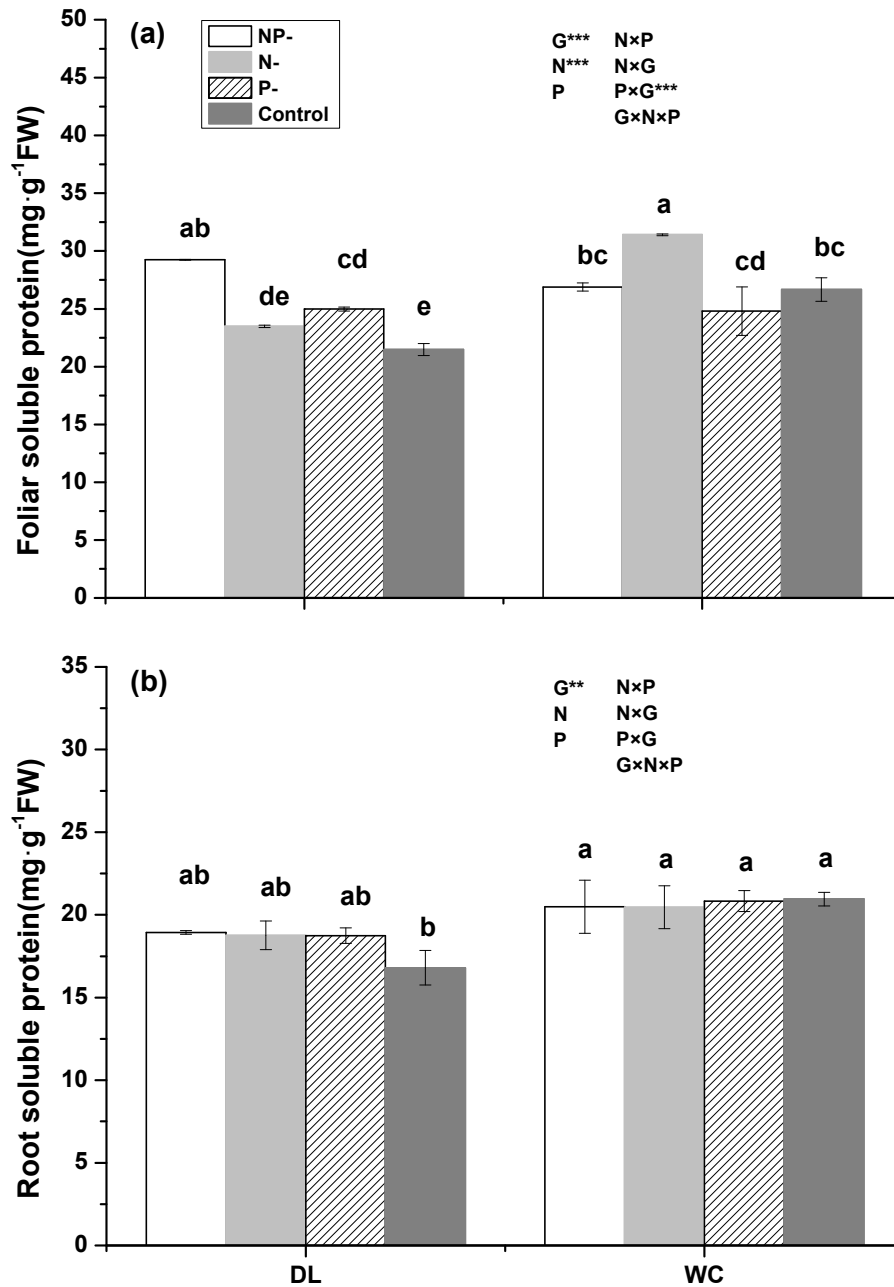


Figure S1. Soluble protein content in foliar (a) and roots (b) for Dailing(DL) and Wuchang(WC) provenances of *Fraxinus mandshurica* under complete nutrients and starvation of N, P or both elements. Bars indicate means \pm SE (n=13). Different letters on the bars indicate significant differences. *P*-values obtained from the ANOVAs for Provenances(G), nitrogen(N), Phosphorus(P) and their interactions (N \times P, N \times G, P \times G, N \times P \times G). **P*<0.05; ***P*<0.01; ****P*<0.001; no * means insignificant.

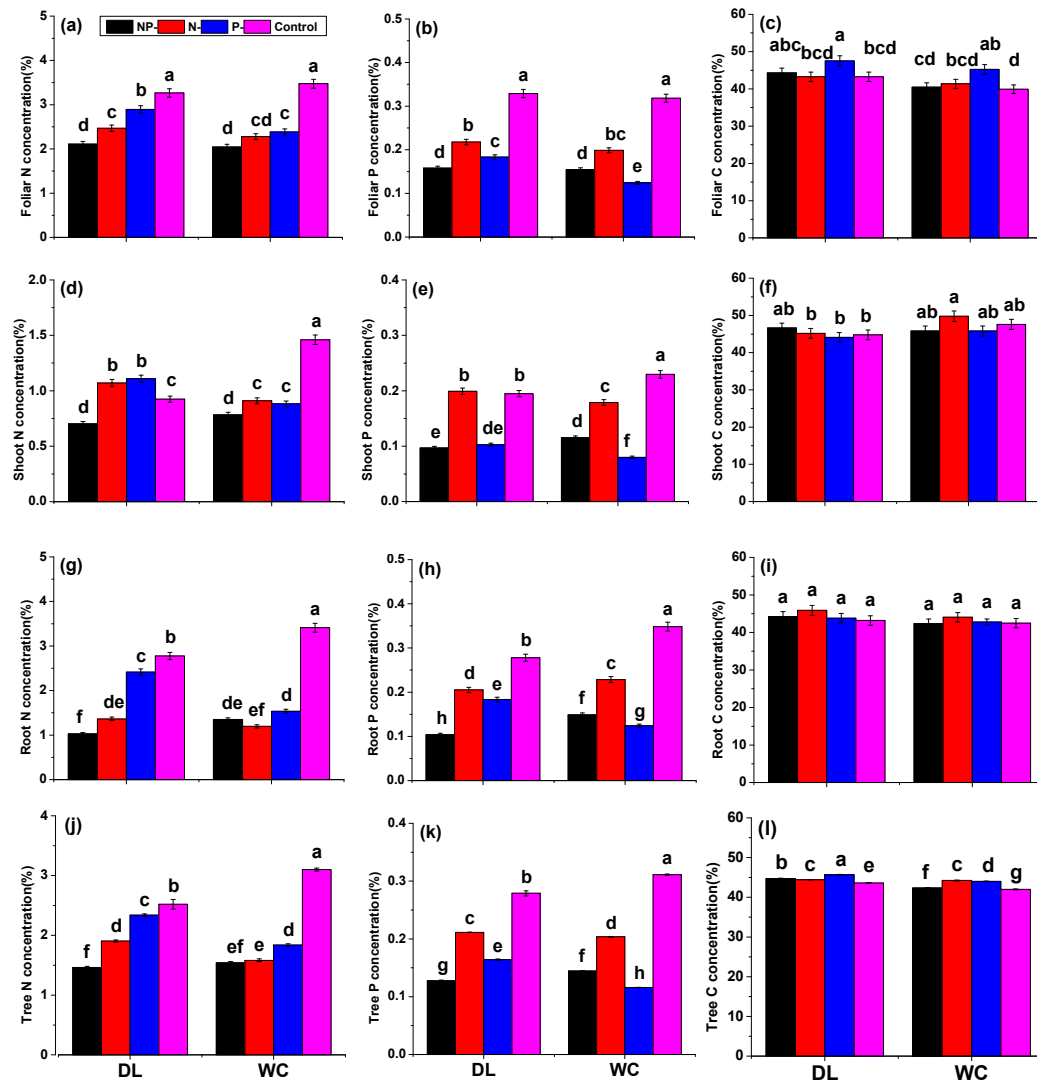


Figure S2. The concentration of carbon, nitrogen and phosphorus for root, shoot, foliar and whole tree of seedlings for Dailing (DL) and Wuchang (WC) provenances of *Fraxinus mandshurica* under complete nutrients and starvation of N, P or both elements. Bars indicate means \pm SE (n=13). Different letters on the bars indicate significant differences.

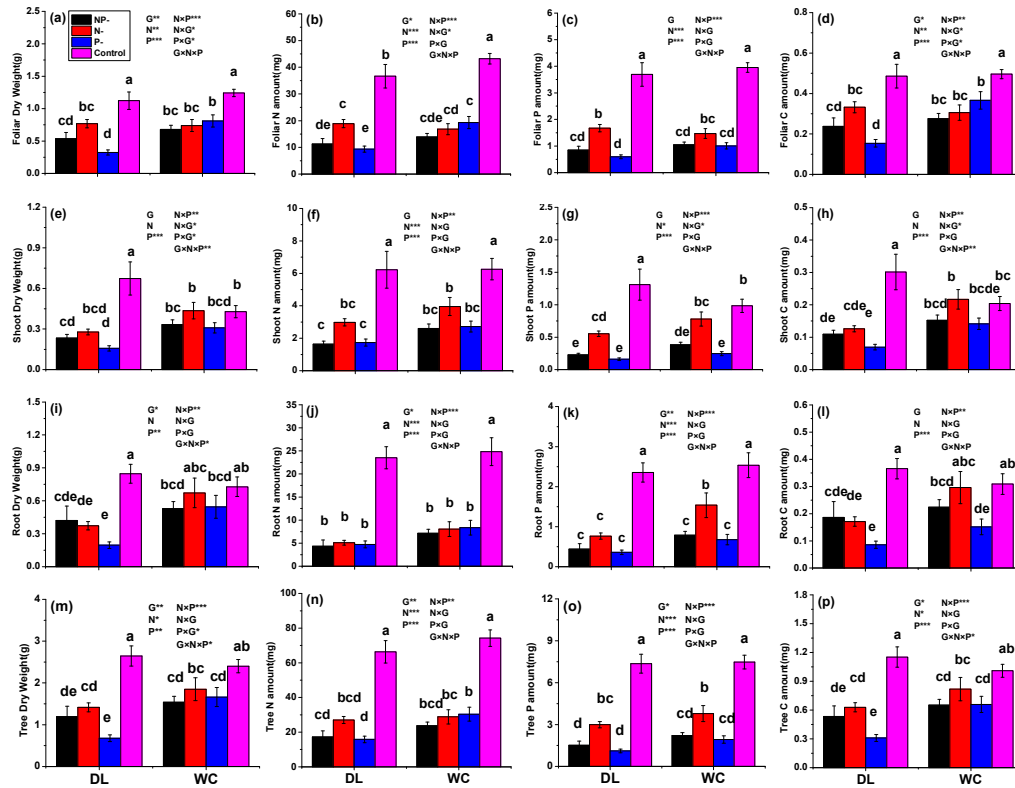


Figure S3. Dry weight and amount of carbon, nitrogen and phosphorus for root, shoot, foliar and whole tree of seedlings for Dailing (DL) and Wuchang (WC) provenances of *Fraxinus mandshurica* under complete nutrients and starvation of N, P or both elements. Bars indicate means \pm SE (n=13). Different letters on the bars indicate significant differences. *P*-values obtained from the ANOVAs for Provenances(G), nitrogen(N), Phosphorus(P) and their interactions (N×P, N×G, P×G, N×P×G). **P*<0.05; ***P*<0.01; ****P*<0.001; no * means insignificant.

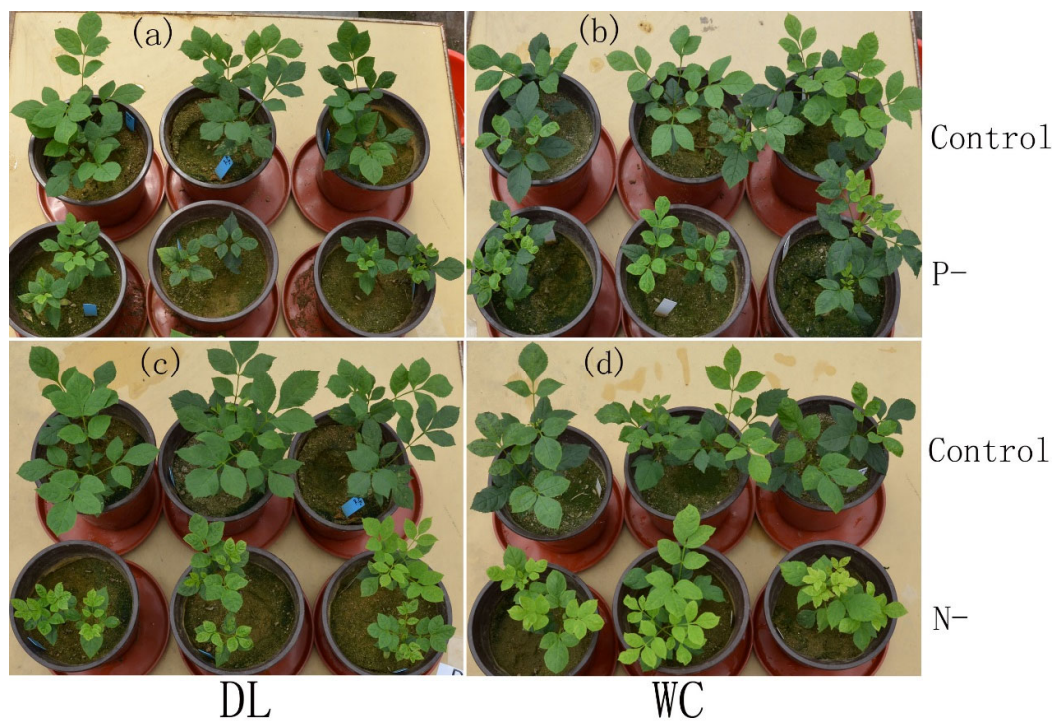


Figure S4. Variation in leaf size and color of seedlings for Dailing (DL) and Wuchang (WC) provenances of *Fraxinus mandshurica* under complete nutrients and starvation of N or P.

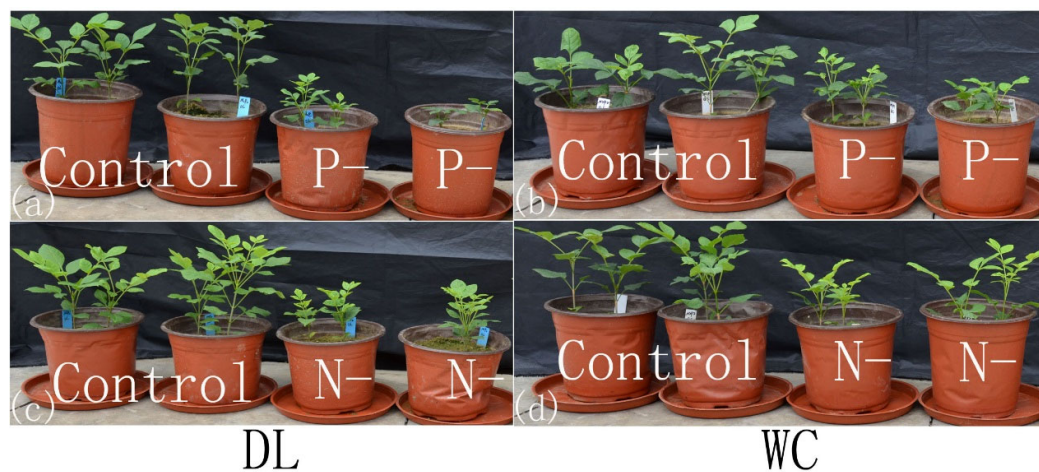


Figure S5. Variation in height of seedlings for Dailing (DL) and Wuchang (WC) provenances of *Fraxinus mandshurica* under complete nutrients and starvation of N or P.



Figure S6. Seedlings for Dailing(DL) and Wuchang(WC) provenances of *Fraxinus mandshurica* under complete nutrients and starvation of N, P or both elements.