

Figure S1. Top three relative abundances of soil bacteria at the level of phylum(A), genus(B), order (C), genus (D). Different letters indicate significant differences in individual parameters among the four treatments detected using the Duncan test ($P < 0.05$). The mean \pm standard deviation was shown. CK: control (no irrigation or fertilization); W: irrigation only; F: fertilizer only; WF: irrigation and fertilization.

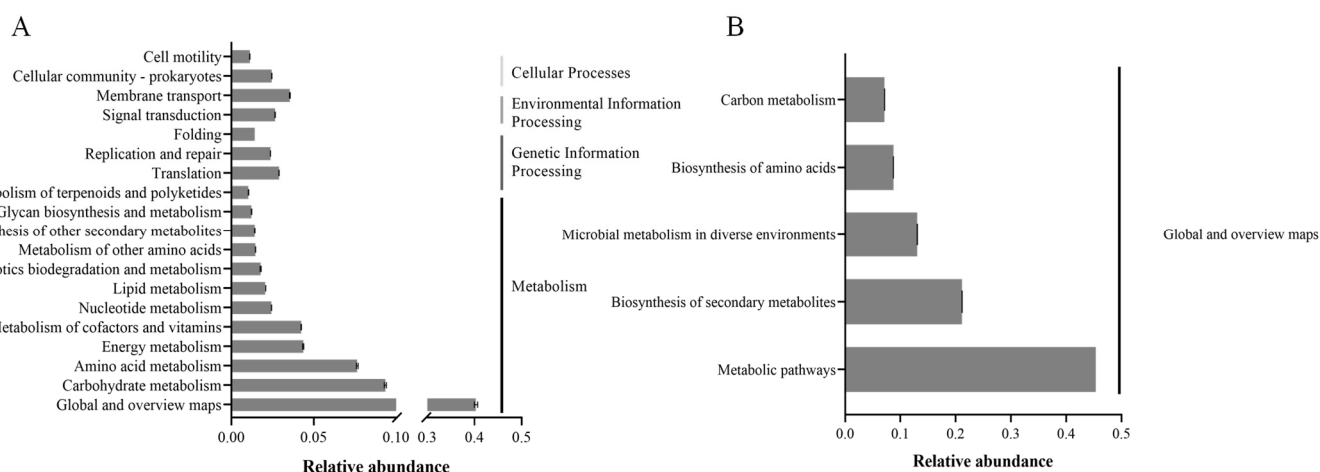


Figure S2. The distribution of bacterial metabolic pathways at the secondary taxonomic level was analyzed using the Kyoto Encyclopedia of Genes and Genomes (KEGG) (A); Top 5 metabolic pathways in the global and overview map (B).

Table S1. Correlation analysis between top ten dominant microbial species and environmental factors in the soil of *Eucalyptus* plantations

| Environmental Factors | RDA1 | RDA2 | R^2 | P -value |
|-----------------------|--------|--------|-------|------------|
| WC | 0.899 | 0.437 | 0.081 | 0.534 |
| pH | -0.874 | -0.487 | 0.054 | 0.640 |
| MBC | -0.600 | 0.800 | 0.650 | 0.001 |
| MBN | -0.064 | 0.998 | 0.271 | 0.093 |
| TN | -0.696 | 0.719 | 0.484 | 0.005 |
| TP | -0.535 | 0.845 | 0.759 | 0.001 |
| AP | -0.681 | 0.733 | 0.506 | 0.002 |
| AK | -0.381 | 0.925 | 0.602 | 0.001 |
| SOC | -0.500 | 0.866 | 0.493 | 0.002 |
| Urease | -0.719 | 0.695 | 0.777 | 0.001 |
| Acid Phosphatase | 0.773 | -0.634 | 0.242 | 0.116 |
| Cellulase | -0.671 | 0.741 | 0.536 | 0.001 |
| Chitinase | -0.667 | 0.745 | 0.601 | 0.001 |
| Invertase | 0.468 | -0.884 | 0.088 | 0.464 |
| Catalase | -0.967 | 0.256 | 0.055 | 0.632 |
| Phenoloxidase | 0.991 | 0.137 | 0.234 | 0.132 |
| Peroxidas | -0.723 | -0.691 | 0.068 | 0.565 |

* The P -alues of RDA1 and RDA2 were the cosine of the angle between the soil environmental factor arrow and the sorting axis; R^2 represented the determination coefficient of environmental factors on species distribution. WC: field water capacity; MBC: microbial biomass carbon; MBN: microbial biomass nitrogen; TN: total nitrogen; TP: total phosphorus; AP: available phosphorus; AK: available potassium; SOC: soil organic carbon.