

Fig. S1. Phylogenetic compositions of 16S rRNA libraries of Sanger sample (S665R-109F), 454 sample (P518R-27F) and simulated samples with different lengths retrieved from the original samples. (A–C) Profiles of Sanger samples at class, family, and genus levels. (D–F) Profiles of 454 samples at class, family, and genus levels (means of three independent analyses). Taxonomic assignment was conducted using RDP MultipleClassifier with a minimum support threshold of 50%.

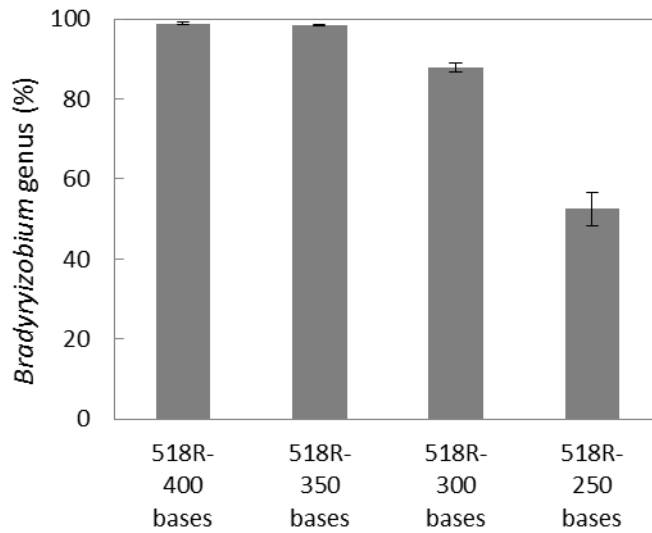


Fig. S2. Proportions of reads assigned as *Bradyrhizobium* by use of partial *Bradyrhizobium* sequences with different lengths retrieved from *Bradyrhizobium* reads in P518R-27F sample. Taxonomic assignment was conducted using RDP MultipleClassifier with a minimum support threshold of 50%. Graph shows average  $\pm$  standard error

Table S1. Phylogenetic compositions of 16S rRNA libraries of Sanger read sample (S665R-109F), 454 read sample (P518R-27F), and simulated samples with different lengths retrieved from the original samples. Relative abundance of 454 samples shows the average of three independent analyses.

|                       | Phylogenetic composition (%)        |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |                        |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |
|-----------------------|-------------------------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|
|                       | RDP MultipleClassifier <sup>a</sup> |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       | BLASTN                 |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |
|                       | Sanger sample                       |                        |                       |                       |                       | 454 sample            |                       |                        |                       |                       |                       | Sanger sample          |                        |                       |                       |                       | 454 sample            |                       |                        |                       |                       |                       |
|                       | S665R-109F (571 bases)              | S518R-109F (380 bases) | S518R-350 (350 bases) | S518R-300 (300 bases) | S518R-250 (250 bases) | P518R-27F (449 bases) | P518R-400 (400 bases) | P518R-109F (372 bases) | P518R-350 (350 bases) | P518R-300 (300 bases) | P518R-250 (250 bases) | S665R-109F (571 bases) | S518R-109F (380 bases) | S518R-350 (350 bases) | S518R-300 (300 bases) | S518R-250 (250 bases) | P518R-27F (449 bases) | P518R-400 (400 bases) | P518R-109F (372 bases) | P518R-350 (350 bases) | P518R-300 (300 bases) | P518R-250 (250 bases) |
| <b>Phylum</b>         |                                     |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |                        |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |
| Proteobacteria        | 65.4                                | 66.3                   | 64.6                  | 72.5                  | 69.3                  | 90.0                  | 76.0                  | 77.6                   | 73.5                  | 76.8                  | 74.3                  | 55.8                   | 62.8                   | 57.3                  | 60.8                  | 60.2                  | 87.7                  | 72.2                  | 74.3                   | 68.6                  | 70.8                  | 69.7                  |
| Firmicutes            | 7.7                                 | 9.3                    | 7.3                   | 6.9                   | 9.1                   | 1.6                   | 9.5                   | 9.5                    | 11.2                  | 9.7                   | 12.2                  | 1.0                    | 1.2                    | 0.0                   | 2.9                   | 4.5                   | 0.3                   | 0.9                   | 0.9                    | 1.3                   | 2.2                   | 3.8                   |
| Cyanobacteria         | 0.0                                 | 0.0                    | 0.0                   | 0.0                   | 0.0                   | 0.2                   | 0.1                   | 0.2                    | 0.2                   | 0.2                   | 0.2                   | 6.7                    | 9.3                    | 8.3                   | 11.8                  | 12.5                  | 0.9                   | 2.2                   | 2.4                    | 2.7                   | 3.8                   | 3.4                   |
| Others                | 2.9                                 | 1.2                    | 3.1                   | 2.9                   | 3.4                   | 3.2                   | 5.9                   | 4.1                    | 6.9                   | 6.5                   | 7.4                   | 1.9                    | 1.2                    | 2.1                   | 2.0                   | 3.4                   | 1.9                   | 2.0                   | 1.2                    | 2.6                   | 3.5                   | 5.2                   |
| <b>Class</b>          |                                     |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |                        |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |
| Alphaproteobacteria   | 26.0                                | 27.9                   | 26.0                  | 28.4                  | 25.0                  | 66.1                  | 48.7                  | 50.7                   | 40.2                  | 40.6                  | 35.5                  | 24.0                   | 27.9                   | 25.0                  | 28.4                  | 25.0                  | 65.1                  | 46.7                  | 49.0                   | 38.7                  | 40.4                  | 35.4                  |
| Betaproteobacteria    | 30.8                                | 34.9                   | 31.3                  | 29.4                  | 34.1                  | 22.2                  | 23.0                  | 22.9                   | 26.8                  | 27.6                  | 31.4                  | 30.8                   | 34.9                   | 31.3                  | 29.4                  | 34.1                  | 22.2                  | 22.9                  | 22.9                   | 26.7                  | 27.5                  | 31.4                  |
| Clostridia            | 7.7                                 | 9.3                    | 6.3                   | 5.9                   | 9.1                   | 1.6                   | 8.6                   | 8.5                    | 10.2                  | 8.8                   | 12.0                  | 1.0                    | 1.2                    | 0.0                   | 2.0                   | 3.4                   | 0.2                   | 0.5                   | 0.6                    | 0.8                   | 1.3                   | 1.3                   |
| Others                | 7.7                                 | 4.7                    | 7.3                   | 14.7                  | 10.2                  | 6.3                   | 10.5                  | 8.5                    | 12.4                  | 13.8                  | 13.8                  | 1.9                    | 0.0                    | 2.1                   | 2.9                   | 3.4                   | 2.2                   | 3.3                   | 2.2                    | 4.5                   | 6.3                   | 8.8                   |
| <b>Order</b>          |                                     |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |                        |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |
| Rhizobiales           | 24.0                                | 27.9                   | 25.0                  | 26.5                  | 23.9                  | 63.2                  | 46.2                  | 48.5                   | 38.3                  | 38.9                  | 33.9                  | 24.0                   | 27.9                   | 25.0                  | 25.5                  | 21.6                  | 61.3                  | 44.7                  | 47.6                   | 37.5                  | 38.7                  | 32.1                  |
| Burkholderiales       | 28.8                                | 33.7                   | 30.2                  | 28.4                  | 33.0                  | 22.1                  | 22.7                  | 22.6                   | 26.5                  | 27.5                  | 30.9                  | 28.8                   | 33.7                   | 30.2                  | 28.4                  | 33.0                  | 19.8                  | 22.5                  | 22.4                   | 26.2                  | 26.7                  | 30.1                  |
| Clostridiales         | 7.7                                 | 9.3                    | 5.2                   | 5.9                   | 9.1                   | 1.6                   | 8.6                   | 8.5                    | 10.2                  | 8.7                   | 12.0                  | 1.0                    | 1.2                    | 0.0                   | 2.0                   | 3.4                   | 0.2                   | 0.5                   | 0.6                    | 0.8                   | 1.3                   | 1.3                   |
| Others                | 8.7                                 | 2.3                    | 6.3                   | 7.8                   | 9.1                   | 6.3                   | 8.2                   | 5.8                    | 9.4                   | 9.9                   | 12.3                  | 1.0                    | 0.0                    | 1.0                   | 2.9                   | 5.7                   | 2.6                   | 3.2                   | 2.1                    | 3.8                   | 5.7                   | 8.8                   |
| <b>Family</b>         |                                     |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |                        |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |
| Bradyrhizobiaceae     | 10.6                                | 12.8                   | 11.5                  | 10.8                  | 6.8                   | 31.8                  | 22.9                  | 23.7                   | 18.6                  | 19.0                  | 8.9                   | 10.6                   | 12.8                   | 11.5                  | 10.8                  | 6.8                   | 31.2                  | 22.7                  | 23.7                   | 18.6                  | 18.9                  | 8.6                   |
| Methylocystaceae      | 12.5                                | 15.1                   | 13.5                  | 12.7                  | 14.8                  | 29.5                  | 21.6                  | 22.7                   | 18.1                  | 17.2                  | 21.5                  | 12.5                   | 15.1                   | 13.5                  | 12.7                  | 14.8                  | 28.8                  | 20.9                  | 22.0                   | 17.5                  | 16.7                  | 20.8                  |
| Burkholderiaceae      | 28.8                                | 33.7                   | 30.2                  | 28.4                  | 33.0                  | 22.0                  | 22.5                  | 22.6                   | 26.2                  | 27.2                  | 30.7                  | 28.8                   | 33.7                   | 30.2                  | 28.4                  | 33.0                  | 19.8                  | 22.3                  | 22.3                   | 26.0                  | 26.5                  | 29.9                  |
| Veillonellaceae       | 4.8                                 | 5.8                    | 5.2                   | 2.0                   | 4.5                   | 0.1                   | 5.9                   | 5.3                    | 6.6                   | 5.6                   | 8.2                   | 0.0                    | 0.0                    | 0.0                   | 0.0                   | 0.0                   | 0.0                   | 0.1                   | 0.1                    | 0.3                   | 0.5                   | 1.4                   |
| Others                | 12.5                                | 5.8                    | 5.2                   | 12.7                  | 14.8                  | 9.1                   | 10.7                  | 9.3                    | 12.6                  | 14.9                  | 17.1                  | 2.9                    | 1.2                    | 1.0                   | 5.9                   | 9.1                   | 3.2                   | 3.8                   | 4.2                    | 4.3                   | 7.8                   | 9.0                   |
| <b>Genus</b>          |                                     |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |                        |                        |                       |                       |                       |                       |                       |                        |                       |                       |                       |
| <i>Bradyrhizobium</i> | 10.6                                | 9.3                    | 6.3                   | 1.0                   | 0.0                   | 30.1                  | 18.3                  | 14.1                   | 10.4                  | 1.4                   | 0.8                   | 10.6                   | 12.8                   | 11.5                  | 4.9                   | 0.0                   | 29.9                  | 21.7                  | 23.3                   | 18.3                  | 10.9                  | 1.0                   |
| <i>Methylosinus</i>   | 6.7                                 | 9.3                    | 9.4                   | 1.0                   | 0.0                   | 13.4                  | 15.5                  | 16.8                   | 13.2                  | 3.5                   | 0.0                   | 8.7                    | 10.5                   | 9.4                   | 8.8                   | 10.2                  | 27.2                  | 19.7                  | 17.3                   | 13.8                  | 13.1                  | 16.4                  |
| <i>Methylocystis</i>  | 2.9                                 | 0.0                    | 0.0                   | 1.0                   | 12.5                  | 3.4                   | 0.6                   | 0.5                    | 0.4                   | 1.5                   | 19.0                  | 2.9                    | 3.5                    | 3.1                   | 2.9                   | 3.4                   | 0.7                   | 0.6                   | 4.0                    | 3.1                   | 3.0                   | 3.8                   |
| <i>Burkholderia</i>   | 28.8                                | 33.7                   | 30.2                  | 28.4                  | 33.0                  | 22.0                  | 22.5                  | 22.6                   | 26.2                  | 27.2                  | 30.6                  | 28.8                   | 33.7                   | 30.2                  | 28.4                  | 33.0                  | 19.8                  | 22.3                  | 22.3                   | 26.0                  | 26.5                  | 29.9                  |
| Others                | 10.6                                | 4.7                    | 7.3                   | 9.8                   | 11.4                  | 8.2                   | 10.2                  | 10.3                   | 11.3                  | 12.3                  | 13.9                  | 1.9                    | 1.2                    | 1.0                   | 12.7                  | 14.8                  | 5.1                   | 4.6                   | 4.7                    | 4.8                   | 15.0                  | 18.2                  |

<sup>a</sup> Taxonomic assignment was conducted using RDP MultipleClassifier with a minimum support threshold of 80%.