Complete Genome Sequence of the Rice Pathogen Pantoea ananatis Strain PA13

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Pantoea ananatis is the causative agent of sheath and grain rot in rice. Here, we present the complete genome sequence of P. ananatis strain PA13, originally isolated from a diseased rice grain.

P. ananatis, which causes rice grain and sheath rot, is commonly found in rice-growing regions (2, 3, 4, 11). This pathogen is a potential threat to stable rice production, especially during the growing season, when the weather is hot and humid (2, 3, 4, 11). This genus belongs to the family Enterobacteriaceae in the group Gamma-proteobacteria. Here, we present the genome sequence of P. ananatis PA13, a strain that was isolated from a diseased rice grain. Whole-genome DNA sequencing of P. ananatis PA13 was performed using Illumina sequencing via the synthesis method on an Illumina HiSeq 2000 genome analyzer. This resulted in 126,557,890 high-quality filtered reads with an average read length of 100 bp and about 2,600× coverage. Quality filtered reads were assembled with the ABySS assembler (10), and the gaps were closed on Consed (6). Coding genes and pseudogenes were predicted with Glimmer (5), GeneMarkHMM (8), and Prodigal (7) and annotated by comparison with NCBI-NR (1). Our annotation results were verified using Artemis (9).

The P. ananatis genome is 4.87 Mb and consists of one chromosome and one plasmid. The chromosome contains 4,586,378 bp (53.66% G+C content), 4,131 predicted coding sequences (CDS), 55 pseudogenes, 7 rRNA operons, and 83 tRNAs. Plasmid PAGR_p contains 280,754 bp (52.25% G+C content, 242 CDS, and 9 pseudogenes). The P. ananatis genome contains approximately 4,542 genes.

Overall, the genome sequence of a strain P. ananatis PA13 will provide the basis for a better understanding of the molecular pathogenesis of rice bacterial rot.

Nucleotide sequence accession numbers. The sequences of the P. ananatis PA13 chromosome and plasmid (PAGR_g and PAGR_p) have been deposited in GenBank under accession numbers CP003085 and CP003086, respectively.

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REFERENCES