The Tn5-*lac*Z marker was used for detection of phosphobacteria, *Pseudomonas striata* (P-27) in the soybean rhizosphere. The chromogenic marker *lac*Z (structural gene for β-galactosidase) was introduced into *P. striata* (P-27) by transposition of Tn5-*lac*Z from *Escherichia coli* (S17-1). The mutants, which expressed β-galactosidase activity on selective media seeded with X-gal and IPTG, were screened for P-solubilization and IAA production. Mutant strains (*lac*Z marked) designated as superior, inferior and isogenic to wild type (P-27) with respect to P-solubilization (T-80, T-125, T-128) and IAA production (T-49, T-57, T-87) were inoculated to soybean in a pot experiment. The inoculated strains were recovered from the rhizosphere at different periods of plant growth by plating on selective medium using lac$^+$ phenotype. A comparison between various mutants in terms of their abilities to colonize the soybean rhizosphere revealed that *lac*Z insertion or mutational over-expression of plant growth promoting traits did not affect the establishment, population dynamics and ecological fitness of phosphobacteria. The technique of monitoring the tagged strains by direct plating on selective medium was found to be superior compared to conventional techniques.