Metabolic engineering of Bacillus subtilis for terpenoids production

Xue, Dan

STELLINGEN

Behorende bij het proefschrift

Metabolic engineering of *Bacillus subtilis* for terpenoids production

van Dan Xue

1. *Bacillus subtilis* was successfully optimized as a high yield cell factory for various valuable terpenoids by overexpressing the MEP pathway enzymes and terpene synthases. (This thesis)
2. It was difficult to establish a stable plasmid-based system for the expression of whole innate MEP pathway genes in *B. subtilis*; nevertheless, this hard effort opens the gate towards numerous commercially important terpenoids. (This thesis)
3. The expression of amorphadiene synthase can be strongly enhanced by fusing the green fluorescent protein at the N-terminus. (This thesis)
4. Using Design of Experiment method minimized the number of experiments by systematically and simultaneously evaluation of multiple variables of the amorphadiene biosynthetic process based on statistical analysis. (This thesis)
5. In metabolic engineering research, not only the yield of the end product is very important, but also how to build a logical story to explain the high yield.
6. More mathematical and computing techniques, such as artificial intelligence, need to be applied to the metabolic engineering process to improve the yield of products.
7. When you start research in a new field, nothing to be feared, it is only to be understood (adapted from Marie Curie).
8. For scientific research, the most important thing is not to stop questioning, no matter questions about mysteries of the universe or questions about growth condition of bacteria. (adapted from Albert Einstein)
9. Start writing as soon as possible, since you will get to really know a field only if you become sufficiently involved to contribute to it. (adapted from Martin T. Orne)
10. There is no single gene for the human spirit. (adapted from *Gattaca*)