

Enzymatic Synthesis of Valuable Compounds Using Microbial Cells

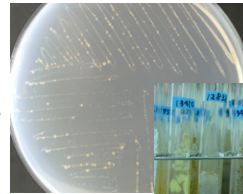
Step 1: Isolation and selection of microorganisms



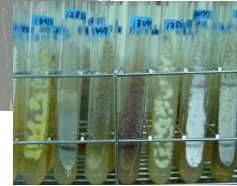
Natural environment



Isolation of microorganisms

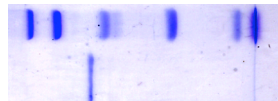


Pure cultures

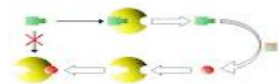


- Screening of target enzyme
- Evaluation of enzyme activity
- Enhancement of the activity

Step 2: Enzyme characterization and gene cloning

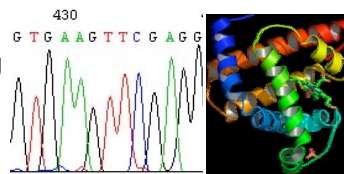


Enzyme purification



Functional analysis

Gene cloning



Structural analysis

Genetic recombination



Over-expressing cells

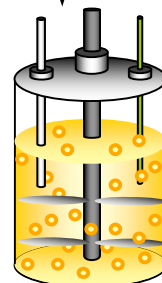
- Analyses of enzyme's function and structure
- Enzyme engineering
- Construction of recombinant microbe

Step 3: Enzymatic production of valuable compounds

Microbial cells of wild strain or recombinant



Raw materials



Enzymatic conversion

Valuable products

- Enzymatic synthesis under mild conditions without by-products
- Environmentally friendly system