SIII-2-4

PRODUCTION OF SPHINGOLIPID BY *PICHIA CIFERRII*

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Sphingolipids contain sphingosine, or phytosphingosine as a long-chain-base connected by an amide linkage to a fatty acid to form ceramide. Biosynthesis of sphingolipid bases is initiated by coupling of serine and palmitoyl-CoA. The first reaction catalyzed by serine-palmitoyltransferase(SPT) is known to be a rate limiting step. The yeast *Pichia ciferrii* produces extracellular tetraacetylphytosphingosine (TAPS) into a culture medium. Phytosphingosine can be obtained by deacetylation of TAPS. One of the single spore isolates(DSCC 7-25) from spores of the diploid *Pichia ciferrii* ATCC 14091 showed significantly increased secretion of TAPS into the culture medium containing nonfermentable carbon sources in batch culture. Optimization of the culture conditions, for example, addition of CaCl2 and serine in the medium resulted in up to 4 - 5 folds increase of TAPS production. The TAPS production yield at a given batch fermentation condition was 1.43g TAPS/L. Screening of mutants showing resistance to cerulenin or β-chloroalanine has been carried out to isolate mutants with increased TAPS production. The results and prospects of these efforts will be discussed.

SIII-3-1

ESCHERICHIA COLI O157:H7 INFECTION

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In the 1980s, the class of enterohemorrhagic *Escherichia coli* strains to which O157:H7 belongs emerged as a recognized cause of hemorrhagic colitis and as a major etiologic agent responsible for the hemolytic uremic syndrome in children and thrombotic thrombocytopenic purpura in elderly persons. Routes of transmission include consumption of contaminated foods, especially those of bovine origin, water, apple cider, and person-to-person spread. *E. coli* O157:H7 causes an illness by the production of cytotoxin called Shiga-like toxin(SLT) or Verotoxin(VT). VT is classified into two types, VT1 and VT2. VT1 variant and several VT2 variants also have been reported. The currently available laboratory method for diagnosing *E. coli* O157:H7 is culture of a stool specimen on sorbitol-MacConkey agar medium. Sorbitol-negative strains should be confirmed by agglutination with specific O157 antiserum or fluorescent antibody tests. To detect VT, immunological assays such as RPLA, ELISA, and bead-ELISA have been reported. In addition, for the detection of VT gene, DNA colony hybridization tests and PCR have also been introduced. Supportive diagnostic tests to detect anti-O157 lipopolysaccharide in serum are helpful while *E. coli* O157 is not identified from the stool obtained during acute phase of illness.