

**E337** Purification And Characterization of an Fe-Superoxide Dismutase from *Streptomyces subbrutilus* P5.

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An Fe-superoxide dismutase was purified by lead-precipitation and Sephadex G-200 gel filtration from the culture filtrate of *Streptomyces subbrutilus* P5. The purity was examined by a single protein band stained by coomassie blue. Final activity of the enzyme was 1.930 units mg<sup>-1</sup> and the molecular weight was 28 KD determined by SDS polyacrylamide gel electrophoresis and 55 KD determined by constructing a plot of Kr against molecular weight from different native gel concentration. The enzyme was resistant to KCN and inhibited by H<sub>2</sub>O<sub>2</sub>. The same characteristic g values for Fe-superoxide dismutase of *Streptomyces griseus* were observed by EPR spectroscopy. The enzyme showed a relatively high heat stability at 37 °C and the optimum pH was 8.5.

**E338** Anaerobic Acid Tolerance Response in Virulent *Salmonella typhimurium*

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The acid tolerance response(ATR) in log phase is an adaptive acid protection system induced at external low pH values below pH5.8 in virulent *Salmonella typhimurium*. Using the P22 MudJ(Km, *lacZ*) operon fusion technique and a lethal selection procedure combining low pH(pH 4.5), benzoic acid(10mM, pH4.5), and sodium acetate(10mM, pH4.5), we isolated LF318 *atrA1::MudJ* and LF354 *atrA6::MudJ*, which were acid sensitive in aerobic condition. Also, we isolated anaerobic acid tolerant mutants, LF487 *aatA::MudJ* and LF488 *aatB::MudJ*. These mutants were showed acid-sensitive phenotype in anaerobic ATR test. Recently, anaerobic acid sensitive(*aas*) mutants were isolated from acetate screening. LF474 *aasA::MudJ*, LF475 *aasB::MudJ*, LF476 *aasC::MudJ*, and LF477 *aasD::MudJ* were showed acid-resistant phenotype in anaerobic condition(5% CO<sub>2</sub>, 5% H<sub>2</sub>, 90% N<sub>2</sub>). Therefore isolated genes that showed anaerobic acid tolerance and sensitivity were suggested important genes for anaerobic ATR system. Also we found acid adapted protection system in anaerobic condition.