E341 Evaluation of biodegradabilities of medium-chain-length polyhydroxyalkanoates

Kang-Eun Ryu*, Gang-Guk Choi and Young-Ha Rhee
Department of Microbiology, Chungnam National University

Biodegradation of medium-chain-length polyhydroxyalkanoates (mcl-PHAs) containing 3-hydroxyalkanoic acid monomer units with different chain lengths (C_6-C_{11}) were studied under laboratory conditions. The process of biodegradation were analyzed by monitoring the time-dependent changes in turbidity of PHA suspension (enzymatic method), clear zone size on agar plates (plate method), and oxygen consumption and CO_2 generation (respiration method). The applicabilities and reliabilities of these test methods for the measurement of biodegradation and the influence of monomer composition in the polyesters on the microbial degradation of mcl-PHAs are discussed.

E342 Virulence Related Anaerobic ATR In *Salmonella typhimurium*

Sun Lee, Young Chan Kim, Jung Hun Jun*, Dong Woo Kim, Kyeong Ryang Park*, Yong Keun Park*, In Soo Lee†

Department of Microbiology, Han Nam University,
*Graduated School of Biotechnology Korea University.

Acid is an important environmental condition encountered by *Salmonella typhimurium* during its pathogenesis. The acid tolerance response(ATR) enables *S. typhimurium* to survive in potentially lethal acidic environments. The ATR in log phase is an adaptive acid protection system induced at external low pH values below pH 5.8 in virulent *S. typhimurium*. Using the P22 Mud*J*(Km, *lacZ*) operon fusion technique and a lethal selection procedure combining low pH and sodium acetate(10mM, pH4.5), we isolated LF318 *atr*A1::Mud*J* and LF487 *aat*A::Mud*J*. *atr*A1::Mud*J* and *aat*A::Mud*J* were significantly more acid sensitive than the wild-type UK1 to aerobic and anaerobic(5% CO_2, 5% H_2, 90% N_2), respectively. The survival rate of LF530 Tn10*d*tet in *aat*A$^+$ *zxx*::Mud*J* was more killed about 100-fold than UK1 by acid after 24-hour period among the virulence test in splenic macrophage of 8- to 12- week old female BALB/c mice, but *atr*A1::Mud*J* was not. So, this result found that virulence was more related to anaerobic acidic condition than aerobic.