

**B317            Isolation and Characterization of the microorganism  
from stock manure**

So Sun Chung\*, Jin Sun Kim, Miyoung Choi<sup>§1</sup>, Seong Yum Seo<sup>†1</sup> and Hyune Hwan Lee<sup>‡1</sup>  
Department of Bioscience and Biotechnology, College of Natural Sciences, Hankuk  
University of Foreign Studies, Yongin. <sup>§</sup>Department of Biological Science, Sun Moon  
University, Asan. <sup>†</sup>Department of Biology, Kongju National University, Kongju. <sup>‡</sup>Regional  
Research Center for New Material by Recyclings, Kongju National University.

The trend toward high-density, confinement rearing of stocks has increased tremendously in recent year. The intensive breeding of stocks leads to the accumulation of large amount of manures(feces and urine) and it cause the environmental pollution problem which has become a center of public concern. Therefore, the composting process has received much attention because of the search to environmentally-sound method for treating stock wastes.

To develop the effective composting system, we isolated microorganisms that have the ability to degrade organic matters such as cellulose, carbohydrate, protein, lipid, pectin and so on. Samples were collected from the stock manure in process of composting and cultured in NA (nutrient agar) media (peptone 0.5%, NaCl 0.5%, Yeast extract 0.2%, beef extract 0.2%). We obtained many kinds of microorganisms. Among them 6 microorganisms were finally selected which show all the enzymatic activities of protease, amylase, cellulase and lipase. These microorganisms were identified and characterized. The effect of pH and temperature on the production of enzymes were studied. The production of the enzymes were growth associated and showed maximal activities at the late exponential phase. The enzymes from the microorganisms are now under characterization.

**B318            Biodegradation of Petroleum Hydrocarbons at Low  
Temperature by a Marine Bacterium**

Choi, Woo Young\*, Oh, Young-Sook, and Kim, Sang-Jin  
Microbiology Lab., Korea Ocean Research & Development Institute

There are several methods to maintain and increase biodegradation rate of petroleum hydrocarbons at low temperature. First of all, the use of microorganisms capable of growing at low temperature will be the most effective methods. Therefore, 11 strains which degraded petroleum hydrocarbons at 8°C were isolated from sediment samples obtained from Yo-Su and Si-Wha area. One of the strains, named PSY11, showed the highest petroleum-degrading activity. After 3 weeks of incubation at 8 °C, PSY11 degraded about 37% of Arabian light crude oil (0.5%, w/v). PSY11 uses broad range of aliphatic hydrocarbons and grows at temperatures ranging from 4°C to 30°C. To investigate the hydrocarbon uptake mechanisms at low temperature, studies on cell surface hydrophobicity and emulsifying activity were conducted at various temperatures.