

E017

Biosynthesis of Colored Prodiginines from a New Marine Bacterium *Hahella chejuensis* KCTC2396

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Hahella chejuensis KCTC2396 produces red pigment in the cell envelope, and the pigment was suspected to be composed of at least three components. The main red-colored part was purified and identified as prodigiosin by NMR analysis, and the other was confirmed as norprodigiosin and undecylprodigiosin by comparing with the well-known pigments from *Serratia marcescens* Nima and *Streptomyces coelicolor* A3(2), respectively. Interestingly, the three prodiginines (general name for a mother structure having three pyrrolyl rings with different alkyl substituents) have not yet reported to be produced by same microorganism. Base on current data, KCTC2396 is thought to possess two separate pathways for the production of prodiginine. As prodigiosin is a promising drug showing immunosuppressive and algicidal effects, the prodigiosin-biosynthetic pathway by KCTC2396 was studied through the structural analyses of accumulated intermediates. In addition, a fosmid clone containing the entire gene clusters for prodigiosin was sequenced and a detailed analysis of this clone is now in progress. This work was supported by a grant from the 21C Frontier Microbial Genomics and Applications Center.

E018

Effect of Feeding Strategy on Recombinant Protein Degradation in Fed-batch Fermentation of *Hansenula polymorpha*

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Intermittent feeding strategy in fed-batch fermentation has been widely developed to control the accumulation of overflow toxic metabolites and oxygen limitation. However, a successively depletion of carbon source by carbon-limited feeding might induce considerably primitive stress to the cell such as nutrient starvation and release a lot of proteases into the medium, and thus may evoke the degradation of secreted recombinant proteins by proteolysis. To prevent the degradation of secreted products in conventional feeding strategies for fed-batch fermentation, we developed the novel feeding strategy of carbon source and evaluated this feeding strategy for recombinant extracellular proteins, human serum albumin (hSA) production from the fed-batch fermentation of MOX promoter-driven recombinant *Hansenula polymorpha*. Comparing to the conventional feeding strategy such as exponential or intermittent feeding strategy, Algorithm-based Ramp feeding strategy developed in this study prevented proteolysis of hSA and showed high production of hSA in fed-batch fermentation.

E019

Anti-inflammatory Effect of Galactomannans Produced by *Sarcodon aspratus* (Berk) S. Ito TG-3 and Alterations of Proteome Profiles in the Plasma of Acetic Acid-Induced Inflammatory Mice

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The anti-inflammatory activity of the galactomannans (GM), produced by mycelial culture of an edible mushroom *Sarcodon aspratus* (Berk) S.Ito TG-3, was investigated in mice. The GM was shown to possess a significant anti-inflammatory activity in a dose-dependent manner when treated with 100 and 200 mg GM/kg body weight. The inhibition in vascular permeability (60.6%) and in writhing response (62.5%) confirmed anti-inflammatory activity of the GM. The effect was higher than the standard reference drug, aminopyrine. The marked anti-inflammatory and writhing reducing properties of this mushroom polysaccharide suggest its potential therapeutic use. We also investigated the alterations of plasma proteome profiles in normal, inflammatory, and GM-treated mice for mining inflammation-associated proteins.

E020

Antioxidant Activity of Fermented Soybean by *Bacillus subtilis* and Lactic Acid Bacteria

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We inspected nitrosation inhibition effect, antioxidant activity and fibrinolytic activity of chungkukjang. This chungkukjang was cofermented by *Bacillus subtilis* and lactic acid bacteria (LAB) from Kimchi. Cofermented soybean was seemed the stronger fibrinolytic activity than general chungkukjang with only *B. subtilis*. But, at initial fermentation, the fibrinolytic activity of cofermentation was equal to that of chungkukjang. At the test of peroxide value, it was lower peroxide value than that. In these results, we inspected the nitrosation inhibition effect of fermented soybean at the condition of pH 2.1, 4.0. using GC-TEA method. Especially, nitrosation inhibition effect of cofermented soybean with LAB was the highest value at pH2.1. It was 30%, while that of fermented soybean with only *Bacillus subtilis* was 20%. At the results, It was expected that it should be good probiotics.