C009

Optimal Conditions of Fermentative Hydrogen Production by *Clostridium beijerinckii* KCTC 1785

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Hydrogen is a clean energy alternative to fossil fuels. Some bacteria have been known to produce hydrogen from organic compounds by anaerobic fermentation In this study, optimal conditions of hydrogen production by *Clostridium beijerinckii* KCTC 1785 were investigated. The parameters of optimal growth conditions were initial pH, temperature, glucose concentration in the medium, and agitation. Initial pH and temperature were 7 0 and 35 ℃, respectively. Although *C beijerinckii* KCTC 1785 could grow up to 7% glucose concentration in the medium but glucose concentration for the highest hydrogen production was 4% Agitation accelerated the hydrogen production The maximum concentration of hydrogen in the produced biogas was 37%, and the yield was 6 8 ml H_2/g glucose h when 1%(w/v) glucose was added to the medium. During hydrogen fermentation, hydrogen and butyric acid were produced simultaneously, however, higher concentration of butyric acid could inhibit hydrogen production

C010

The Development of a Plant-based Oral Vaccine for Malaria

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Transgenic plants led to the production of plant-derived monoclonal antibody(mAb), which provides a safe and economically feasible alternative to the current methods of antibody production in animal systems. We expressed a protein in *Brassica carinata* in order to evaluate the humoral immune response to the C-terminal region of the merozoite surface protein 1(MSP-1) of *Plasmodium vivax* This recombinant protein expressed in the *E coli* system had its immunogenicity identified in the previous experiment

By changing the sequences of this MSP-1 gene according to the codon usage the plant prefers, the stable expression of recombinant protein in the plant was attempted. Through the experiments Gus detection, PCR, RT-PCR carried out with the candidates, the insertion of gene was identified. By feeding the transgenic plants to rabbits, oral immunization was tried out and the immunogenicity was identified in the animal system through the immunoblotting test

C011

Effect of Inorganic Phosphate on Pigment Production in *Monascus* sp.

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The pigments of *Monascus* sp are used as a natural food colorant *Monascus* sp produces yellow, orange, and red pigments We tried to find the effect of inorganic phosphate by using minimal medium in *Monascus* pigments Both pigment amount and dried cell weight were measured *Monascus ruber* KCTC6122, *Monascus ruber* KCCM11845, and *Monascus purpureus* KCCM 60168 produced more pigments under low phosphate concentration compared to high one But dry cell weights were higher in high phosphate condition The results suggest that high phosphate condition may inhibit pigment synthesis and pigment production can be induced by phosphate limitation The effect of inorganic phosphate in rich medium will be also discussed

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C012

Validation of One-step Real-time RT-PCR Assay in Combination with Automated RNA Extraction for Rapid Detection and Quantitation of Hepatitis C Virus RNA for Routine Testing in Clinical Specimens

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A one-step real-time quantitative RT-PCR assay in combination with automated RNA extraction was evaluated for routine testing of HCV RNA in laboratory Specific primers and probes were developed to detect 302 bp on 5'-UTR of HCV RNA .The assay was able to quantitate a dynamic linear range of 10^7-10^1 HCV RNA copies/reaction (R^2 = 0 997) The synthetic HCV RNA standard of 1 84 ± 0.1 (mean ± SD) copies developed in this study corresponded to 1 international unit (IU) of WHO International Standard for HCV RNA (96/790 I) The detection limit of the assay was 3 RNA copies/reaction (81 IU/ml) in plasma samples The assay was comparable to the Amplicor HCV Monitor (Monitor) assay with correlation coefficient r = 0 985, but was more sensitive than the Monitor assay The assay could be completed within 3 h from RNA extraction to detection and data analysis for up to 32 samples It allowed rapid RNA extraction, detection and quantitation of HCV RNA in plasma samples The method provided sufficient sensitivity and reproducibility and proved to be fast and laborsaving, so that it was suitable for high throughput HCV RNA test

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