Z. mobilis was also purified by the same procedures. The two enzyme preparations were characterized and compared. It was found that the *E. coli* ADH was identical to one of two ADH isozymes of *Z. mobilis*. Analytical gel filtrations led to the conclusion that the molecule of *E.coli* ADH was composed of four subunits having molecular weight of 40,000 (+1,000) dalton each. The effect of metal ions on ADH activity and optimum pH were investigated.

Brevibacterium ammoniagense 융합균주의 GMP 생성

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5′-Xanthylic acid 생성균주인 *Brevibacterium ammoniagenes* ATCC 21263 R에 XMP에서 GMP로의 전환효소인 GMP synthetase 활성을 부여하기 위해 동종간 세포융합을 시도하여 융합균주들을 얻었다. 이들 우량 융합균주들과 융합모균의 GMP synthetase 활성을 측정하여 상호 비교하였으며, pH 변화에 따른 GMP synthetase 활성과 GMP 생성량과의 관계를 검토하였다. 또한 최적 pH에서 균성장에 따른 당소모량과 GMP 생성량을 비교하였다.

Physiological and Nutritional Factors for Efficient Sporulation and Toxin Formation in *Bacillus tthuringiensis*

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In order to optimally induce sporulation and toxin formation in *Bacillus thuringiensis*, exhaustion of specific nutrients as well as resuspension experiments were tried. Sporulation and toxin formation was most abunduntly occurred when the growth was limited by carbon source. It was also occurred in a resuspension medium containing only distilled water. Various environmental and physiological factors affecting the efficiencies of spore and toxin formation were examined in chemically defined media. As a result of these studies, a batch fermentation resulted in higher spore and toxin yield than ever reported.

Isolation, Identification and Chitinolytic Properties of *Aeromonas hydrophila*

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A Screening test was carried out for chitin-decomposing bacteria. In 100 samples from

soil, fesh water and sea water, 7 strains of Chitinolytic bacteria were isolated. 5-3K which exhibited the highest chitinase activity was identified as *Aeromonas hydrophila* and cultural conditions from maximum chitinase production were determined. Optimum Chitinase production was obtained at pH 7, 33eC and with chitin concentration greater tham 0.2% Under optimal conditions, high yields of Chitinase were obtained in 16-30 hours. Chitinase was purified by ammonium sulfate precipitation and sephadex G-100 gel-filtration from the culture filtrgte.

Deactivation kinetics of *C. rugosa* lipase

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To extend the spectrum of enzyme utilization in the organic solvent system, *C. rugosal* lipase was selected as a model enzyme because its substrate is soluble to organic solvent. One of the serious disadvantages in this system was the deactivation of the lipase. The pattern of lipase deactivation was the biphasic model. The activation energies for the deactivation were 14.05×10^4 KJ/ Kg mole in the first phase and 3.59×10^4 KJ/mole in the second phase. The several factors were studied for their influences on the pattern of deactivation. Iso-octane as organic solvent influenced more on the first phase than the second phase. Urea as the reagent affecting boty hydrophobic interaction and hydrogen bond of enzyme also influenceo more on the first phase. And the optimum pH for the activity was not correlated to that of the stability.

Characteristics of lipase immobilized on sephadex LH-20 and sephade x LH-60 for hydrolysis of olive oil in reverse phase system

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The hydrolysis of olive oil was attempted with immobilized *C. rugosa* lipase in the reverse phase solvent system. (i.e. immobilized wet particles is dispersed in continuous phase olive oil or organic solvents containing olive oil). Sephadex LH-20 and LH-60 were used as the supports that can be used in organic solvents. The water content of wet particles of sephadex LH-20 and LH-60 were about 72% (w/w) and 85% (w/w), respectively. Both swollen gels with 0.05M buffers adsorbed about 18% of lipase dissolved. They were easily dispersed in liquid olive oil or in organic solvents. The effects of organic solvents on the stability and catalytic activity of the lipase have been examined. The results revealed that isooctane is superior to the other solvents examined for enzymatic fat spliting in reverse phase system. Kinetics of enzymatic hydrolys of olive oil by immobilized lipase has been investigated in a batch reactor. Effects of pH and temperature on the lipase were studied. The substrate concentration was influenced positively on the thermal stability.