

의 효소와 그 성질을 비교 검토하였다.

인 용 문 헌

- (1) K. Horikoshi; 산업미생물학회 1978년도 추계 학술발표회, 특별강연 1978, 10, 21.

3. 核酸分解酵素에 관한 研究

(第二報) *Streptomyces* 屬 菌株가 生産하는 Phosphodiesterase 의 정제 및 성질

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Streptomyces 屬 菌株가 生産하는 Phosphodiesterase 를 몇가지 방법에 의하여 정제하여 그 성질을 조사 검토했다.

1) Sephadex G-50 및 DEAE-Cellulose Column Chromatography 에 의하여 300배 정제하였으며 그 수율은 3.8%이었다.

2) b-PNPP 을 기질로 해서 정제한 본 효소의 성질을 검토한 결과 본효소의 활성발현에 Ca^{++} 이온이 필요했으며 Ca^{++} 이온은 이 효소의 열안정성에도 도움을 주었다. 또 이효소의 최적작용 pH는 8.0부근이었으며 최적작용온도는 50°C 부근이었으며 b-PNPP 을 기질로 한 Km 치는 1.11mg/ml 이었다.

4. Quantitative Physiology of *T. reesei*

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By employing a two-stage continuous culture system, some of important physiological parameters involved in cellulase biosynthesis have been evaluated with an ultimate objective of designing an optimally controlled cellulase process.

Volumetric and specific cellulase productivities obtained were 90 IU/liter/hr and 8IU/g biomass/hr respectively. The maximum specific enzyme productivity observed was 14.8 IU/g biomass/hr. The optimal dilution rate in the second stage which corresponded to the maximum enzyme productivity was 0.026-0.028 hr⁻¹, and the specific growth rate in the second stage that supported maximum specific enzyme productivity was equal to or slightly

less than zero. The maintenance coefficients determined for oxygen and for carbon source are $M_0 = 0.85$ mmole/g biomass/hr and $M_c = 0.14$ mmole hexose/g bio mass/hr respectively.

The yield constants determined are; $Y(x/o) = 32.3$ g biomass/mole oxygen, $Y(x/c) = 1.1$ g biomass/g carbon or 0.44g biomass/g hexose, $Y(x/n) = 19.6$ g biomass/g nitrogen for the enzyme production stage and 12.5g biomass/g nitrogen for the cell growth stage.

5. 窒酸鹽이 *Saccharomyces cerevisiae* 의 醱酵作用에 미치는 影響

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重金屬을 함유한 13종의 窒酸鹽을 各 濃度別로 添加하여 酒精酵母 *Saccharomyces cerevisiae* 의 酒精生産과 醱酵作用에 미치는 영향을 調査하였다.

1. 一般的으로 重金屬을 함유한 窒酸鹽은 그 添加量이 0.0001mol. 보다 高濃度일수록 *Saccharomyces cerevisiae* 의 醱酵作用을 漸次 抑制하였다.

2. Nickel nitrate, chromium nitrate 들의 0.0001 mol. 의 添加는 *Saccharomyces cerevisiae* 의 alcohol 醱酵作用을 若干促進시켰다.

3. Cadmium nitrate 0.001mol. 이상, cupric nitrate, nickel nitrate, cobalt nitrate 0.01mol. 이상, 그리고 silver nitrate, mercurous nitrate, manganese nitrate, zinc nitrate, lead nitrate, chromium nitrate, ferric nitrate, bismuth nitrate 0.1mol. 의 濃度에서 *Saccharomyces cerevisiae* 의 醱酵作用은 완전히 阻止되었다.

6. Immobilization of Microbial Cells and Organelles by Entrapment with Urethane Prepolymers

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Acetone-dried cells of *Arthrobacter simplex* were entrapped in several preparations of hydrophilic urethane prepolymers and their steroid converting ability was examined.

Several solvents, such as methanol and propy-

lene glycol, were effective for the conversion of hydrocortisone to prednisolone. The stability of the immobilized cells during storage and on repeated reactions was also examined.

This convenient entrapping method was also applicable for the immobilization of cellular organelles. yeast peroxisomes. The entrapped peroxisomes showed the activities of alcohol oxidase and catalase.

7. A Method for Quantitative Determination of 17 Ketosteroids from Cholesterol Fermentation Broth

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In the experiment of cholesterol and steroidal compounds, gas chromatography has been widely used to determine the compounds. Without the facility, we could determine the amount of 17-ketosteroids in the use of t.l.c technique.

In the microbial conversion of cholesterol to 17-ketosteroids, α, α' -dipyridyl which might be an inhibitor of 9 α -hydroxylase of steroid skeleton was added to microbial culture broth.

The inhibitor contaminated due to its solubility in organic solvents and hindered the determination of 17-ketosteroids on t.l.c in all the process of the experiment. we successfully determined the 17-ketosteroids by the use of Ag^+ band on t.l.c. plate.