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Effects of the plant growth regulator (P. G. R.) on the reaction of proteinase,  $\gamma$ -amylase and acid phosphatase were investigated, and also were the conditions of production of P. G. R. by *Streptomyces* sp. 445. The P. G. R. had no effect on the activities of such enzymes in mung bean seedling. But in germinating seed previously treated with P. G. R. it effected the activity of protease in cotyledon.

In the conditions of production of P. G. R., the maximal activity was appeared in shaking culture at 30°C for 5 days, and by the addition of peptone or casein hydrolysate as nitrogen source, soluble starch as carbon source, and sulfur as metal ion.

#### 16. 酵母에 의한 Phenol 性 物質의 資化에 對하여

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Phenol 性 物質이 含有된 産業廢水의 處理와 phenol 을 炭素源으로 하는 菌體를 利用할 目的으로 工業廢水의 汚泥로부터 phenol 資化能이 우수한 酵母 菌株를 선택하여 이 菌의 生育에 미치는 環境要因을 調査하였다.

初發 pH 3.5~4.5에서 35°C 경우 資化能이 가장 좋았으며 HgCl<sub>2</sub> phenylhydrazin 10<sup>-3</sup> M濃度에서 완전히 資化能을 잃었다. 培養基 中の 窒素源으로 KNO<sub>3</sub>, (NH<sub>2</sub>)<sub>2</sub>CO 가 가장 좋았으며 yeast extract 0.01% 첨가하므로써 가장 높은 發育效果를 보았다. Phenol 을 연속적으로 90 시간까지 5회 feeding 하며 계속적인 菌體增殖과 phenol 소모를 보았으며 한편 本菌이 catechol, resorcinol 도 資化할 수 있다는 점도 알았다.

#### 17. Hydrolysis of Rice Straw with *Trichoderma viride* TO4 Cellulase

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Rice Straw was delignified by autoclaving with 1% NaOH solution at 121°C for one hour and

was disintegrated by a Wiley mill to 60 mesh. This substrate was saccharified with cellulase produced by *Trichoderma viride* TO4 in solid culture medium. The rate and extent of hydrolysis were both increased when high enzyme concentration and low substrate concentration were employed. The original cellulose was treated with 0.19 FPA unit for three hours and followed by the second treatment for the same period with the same concentration of enzyme after washing. By doing this the hydrolysis rate at the second stage could increase four folds of that unwashed. The same experiment with 0.32 FPA unit yielded two folds suggesting an end-product inhibition on the reaction system. The extent of hydrolysis however, could not be increased by this process.

#### 18. 납의 耐性菌에 關하여

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工場廢水 및 汚泥로부터 납에 耐性이 강한 한 菌株를 分離하여 이 菌株의 生理的 特性과 生育度를 檢討하였으며 아울러 本 菌株의 菌體內에 납의 蓄積과 分布를 조사하고 菌體의 細胞內 微細構造 變化를 電子顯微鏡으로 觀察하였다.

#### 19. Chitinase Produced by *Streptomyces* sp.

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The Chitinase which hydrolyzes the chitin,  $\beta$ -1, 4-polymer of *N*-acetyl glucosamine, was purified from the culture broth of *Streptomyces* sp. 115-5 strain.

The homogeneity of enzyme was revealed by CM-Sephadex C-50 column chromatography and polyacrylamide gel electrophoresis. The purified enzyme hydrolyzed chitin and chitosan, but not cellulose. And with chitin as the substrate, a *K<sub>m</sub>* value of 3.6 mg per ml and a *V<sub>max</sub>* of 100  $\mu$  mole per hr were found. The activation energy for the reaction was 3.66 Kcal per mole. The M. W. was estimated 56,000 daltons, and PI as 3.0. The