水産食品の腐敗中毒に関する研究—IX.

Proteus morganii の *l*(-)-Histidine 脱炭酸
酵素形成に關与する因子

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STUDIES ON THE FOOD POISONING ASSOCIATED WITH
PUTREFACTION OF MARINE PRODUCTS—IX.
FACTORS AFFECTING THE FORMATION OF *L*(-)-HISTIDINE
DECARBOXYLASE BY *PROTEUS MORGANII*.

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Factors affecting the formation of *l*-histidine decarboxylase by *Proteus morganii*, #71 were investigated. The enzyme formation was markedly influenced by such factors as the amount of *l*-histidine in media, pH, the amount of fermentable carbohydrate, growth temperature, and incubation period.

The enzyme was found to be an adaptive one. For the full development of the enzyme in bacterial cells, 2×10^{-3} M or more of *l*-histidine was essential.

Production of the decarboxylase was closely related to pH. The maximum production of the enzyme occurred at an initial pH of 5.1, the lowest value for supporting growth of *Proteus morganii*. The organisms grown at a pH between 5.5 to 7.3 possessed about 50 per cent and those between 7.6 to 8.7 about 10 per cent of the maximum activity.

The presence of such fermentable carbohydrate as glucose in a medium enhanced not only the yield of bacterial cells but also the activity of the enzyme on protein basis. The highest activity was recorded in the organisms grown in a mackerel infusion medium containing 0.5 to 2.0 per cent of glucose. The addition of 3 per cent or more of glucose rather inhibited the enzyme formation, although it brought about a satisfactorily low pH by fermentation during bacterial growth.

The enzyme activity was the highest at about the time when cell division ceased (at about 16th hour); while slight activity was shown in the organisms harvested from cultures in the phase of degradation (48th or 96th hour).

ま え が き

前報¹⁾において *Proteus* 菌における *l*-histidine 脱炭酸酵素の分布を調べたところ、*P. morganii* には強力な酵素作用が認められ、他の *Proteus* の脱炭酸能は微弱であつた。さらに従来から詳細研究されている *Cl. perfringens (welchii)*²⁾³⁾ と *P. morganii* の *l*-histidine 脱炭酸能の比較を行なつたところ、洗滌菌体の至適脱炭酸 pH は前者は 3.2、後者は 5.8 であつた。そして脱炭酸領域も両菌では著しく違つていた。また *P. morganii* には histidine の脱アミノ能はなく、サバエキス中で培養してもアンモニア形成を行なわなかつた等、本菌の histidine の分解は *Cl. perfringens* とは可成り様子が異なることが判つた。筆者らは水産食品によるアレルギー様食中毒の研究の一環として、原因物質の異常蓄積の機構を解明するた

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