

Aspergillus fumigatus TKU003所生產蛋白質及幾丁質純化及定性之研究

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摘要

本研究係探討Aspergillus fumigatus TKU003生產蛋白質及幾丁質之較適生產條件，並進行所得蛋白質及幾丁質之純化與特性。最適培養條件為：於含有2% 蝦蟹殼粉、0.1% K₂HPO₄、0.05% MgSO₄·7H₂O之液態培養基(pH4)，於37℃振盪，培養六天後，可得最高的蛋白質活性(1.15 U/ml)。Aspergillus fumigatus TKU003發酵液經DEAE-sepharose CL-6B等步驟分離純化後，可得分子量124 kDa，pI為8.3的一種的蛋白質。此蛋白質之pH穩定性、最適反應pH、熱安定性、最適反應溫度分別為7~9、7~10、30~50℃、40℃，PMSF會完全抑制酵素活性，因此推測此酵素係屬一種絲胺酸型蛋白質。幾丁質最適培養條件為：1% 蝦蟹殼粉、0.1% K₂HPO₄、0.05% MgSO₄·7H₂O、0.1% ammonium sulfate、0.1% ferrous sulfate之液態培養基(pH4)，於37℃振盪，培養四天後，可得最高的幾丁質活性(1.09 U/ml)。發酵液經由DEAE Sepharose CL-6B及Sephacryl S-200進行酵素之純化後可得一種幾丁質，分子量29 kDa，pI為6.5的一種的幾丁質。此幾丁質之pH穩定性、最適反應pH、熱安定性、最適反應溫度分別為5~7、4~7、30~50℃、40℃，EDTA會完全抑制酵素活性，因此推測此酵素係屬一種金屬型酵素，又以Mg²⁺及Fe²⁺離子能夠增加酵素活性，而Mn²⁺、Hg²⁺及Cu²⁺抑制酵素活性。

關鍵詞：蝦蟹殼粉；蛋白質；幾丁質；酵素純化；

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