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Isolation of thermophilic collagenase-producing bacteria from Kimchi

SON, SHUNG-HUE, HONG-KI JUN

Division of Biological Sciences, Pusan National University, Pusan 609-735, Korea

Collagen and its digests have been widely used in protein-based industries as solidifying and emulsifying biopolymers. These polymers are also used in medical and chemical industries to produce skin substitutes, surgical threads and phamacological capsules, as well as photographic coating.

For the screening of collagenase-producing bacteria a medium including the following composition was used: K_2HPO_4 0.7%, KH_2PO_4 0.2%, $MgSO_4 \cdot 2H_2O$ 0.01%, citrate $\cdot 2H_2O$ 0.05%, yeast extract 0.1%, and insolouble collagen type I 0.3%. The culture condition was pH 7.0 at 30°C. Collagenolytic activity was assayed by the Ninhydrin procedure of Rosen. Total 78 thermophilic collagenase-producing bacterial strains were isolated from kimchi. All of the collagenases are produced extracellularly. Among the 78 isolates, four strains(No. 2, 5, 8, 17) showed exclusively high level of activity.