Deproteinization of crab shell waste by protease-producing *Serratia marcescens* FS-3

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Abstract

For deproteinization of crab shell wastes by a biological treatment, seven microorganisms were isolated from the soil containing crab shell wastes in Korea. Among them, isolate FS-3 was selected for the deproteinization of crab shell wastes and showed the highest protease activity, showing 60.7 U/ml after 3 days of incubation. Based on the nucleotide sequence of a conserved segment of a 16S rRNA gene, the bacterium was isdentified as *Serratia marcescens* FS-3. The percent values of protein removal from natural crab shell and acid treated crab shell waste by 10% FS-3 strain were 84% and 10%, respectively, after 7 days offermentation. Under the same condition, demineralization of natural crab shell by the isolate FS-3 was 47%. Deproteinization of natural and acid treated crab shell waste by 1% Delvolase was 90% and 81%, respectively, after 5 days incubation. In combination of 50% FS-3 culture supernatant and 1% Delvolase, deproteinization of natural and acid treated crab shell waste was about 85% and 55%, respectively, after 7 days incubation. In combination of 10% FS-3 and 1% Delvolase, deproteinization of natural and acid treated crab shell waste was about 81% and 76%, respectively, after 7 days fermentation. Deproteinization rate of FS-3 strain is higher than other studies by other protease-producing bacteria fermentation. These results suggest that isolate FS-3 could be potential as an enzyme source for deproteinization of crab shell.

References

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