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Characterization of an extracellular β-agarase from marine bacterium *Agarivorans* sp. JA-1

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Agar, a polysaccharide present in the walls of some red algae, can be degraded by several bacterial strains from marine environments and other sources. Some of the bacterial isolates have been assigned to the genera *Bacillus*, *Paenibacillus*, *Streptomyces*, *Pseudoalteromonas*, *Pseudomonas*, *Alteromonas*, *Microscilla*, *Vibrio*, *Cytophaga* and *Zobellia*. These hydrolytic enzymes are classified in two groups according the mode of action on the agarose : *α*-agarases cleave the *α*-1,3 linkage of agarase, and *β*-agarases cleave the *β*-1,4 linkage of agarose. *β*-agarase is unique in its ability to break down the agarose polysaccharide core made up of repeating 1,3-linked *β*-D-galactopyranose and 1,4-linked 3,6-anhydro-*α*-L-galacto-pyranose into neoagarobiose oligosaccharides. In this study, we describe the properties of *β*-agarase from *Agarivorans* sp. JA-1. The strain was cultivated in 300 ㎖ flask with shaking incubator at 30 ℃, 250 rpm and the culture broth was centrifuged to obtain clear supernatant which was used for all assay. Temperature, pH, and substrate concentration were tested for investigating of the optimal *β*-agarase activity.