

Nutritional factors affecting organic solvent-tolerant alkaline protease production by a new *Bacillus cereus* strain 146

ABSTRACT

An organic solvent-tolerant bacterium designated as 146 capable of producing an organic solvent-stable alkaline protease was isolated from contaminated soil of a wood factory. The strain was a Gram-positive, spore-forming, nitrate-positive, rod-shaped organism capable of hydrolysing gelatine, starch, skim milk and identified as *Bacillus cereus*. Activity of the protease was drastically increased in the presence of 1-dodecanol, isooctane, n-dodecane and n-tetradecane, but reduced in the presence of ethyl acetate, benzene, toluene, 1-heptanol, ethylbenzene and hexane. The bacterium was shown to require lactose as a carbon source and peptone as a nitrogen source. The optimum fermentation condition for the production of alkaline protease was in the presence of beef and yeast extract. Optimum pH was determined to be at 10.0 at incubation temperature of 37 °C for 48 h. Results from the studies suggest that 146 is a new strain of *Bacillus cereus* capable of producing organic solvent-tolerant alkaline protease with potential use in industries.

Keyword: Organic solvent-tolerant; Alkaline protease; *Bacillus cereus*; Media composition