

Proteinases from Marine Organisms

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I. Introduction

As part of a complex organism, enzymes occur in biological systems making possible a large number of specific chemical reactions of metabolism. Enzymes are biocatalysts of great interest in biological areas and of relevance as current and promising tools in biotechnologies such as in food or feed processing (Whitaker 1994), and as pharmaceuticals. Biological catalysts in general are attractive for industrial purposes because of their high specificity to transform the substrate, efficiency of catalysis, increasing reaction rate, working at moderate conditions of temperature, pH, and ionic strength, and specificity for the reaction they accelerate to yield 100% of only one product (Mars *et al.* 1999). Advantages achieved when working with enzymes are the catalysis of relatively pure products, thus minimizing waste and producing a large number of product molecules per unit of time. However, not every biological catalyst is useful industrially (Haard 1998). In food science and technology, enzymes are important in many ways: 1) in raw material production in growth, and maturation of the source organism, 2) processing: biotransformation of the raw material, storage, and spoilage, 3) market: consumer preferences and selection; safety and control of predators, 4) nutrition: food intake, digestion, and assimilation. Public health: disease control, and 5) as analytical tools (Reed 1993). Because enzymes are the only molecules with biotransformation capabilities, they are important tools of biotechnology.

Proteolytic enzymes are by far the most important group of enzymes in industry. Uses include cheese production and accelerated ripening, chill-proofing of beer, tenderization of meat, and modification of the