Exploring the sources and potential applications of marine collagenases

ABSTRACT

Collagenases are the most important group of collagenolytic proteases due to their multifarious catalytic potential and broad commercial applications. This review of the literature highlights the potential applications of collagenases in the food and medical industries as necessary components for bioactive functional ingredients and in the preparation of useful peptides. Due to their collagenolytic activity, they are critical factors that play a role in the global degradation of the extracellular matrix of animals. Marine organisms serve as a rich reservoir for the isolation and characterization of novel bioactive compounds, including hydrolytic enzymes. Despite the abundance of biological resources in the marine environment, very few of these commercially popular enzymes have been isolated from marine sources. There is a knowledge gap regarding the marine collagenase-producing organisms and the significance of the applications of this enzyme. This review summarizes the properties of collagenases isolated from marine organisms and discusses their potential applications. Furthermore, the critical challenges for the potential applications of collagenases in food and medical industries and their importance in biotechnology are also discussed here.