

**Extraction and characterization of bioactive fish by-product collagen as promising for potential wound healing agent in pharmaceutical applications**  
**Current trend and future perspective**

**ABSTRACT**

Collagen is a structural protein naturally found in mammals. Vertebrates and other connective tissues comprise about 30% of an animal's overall protein. Collagen is used in a variety of applications including cosmetics, biomedical, biomaterials, food, and pharmaceuticals. The use of marine-based collagen as a substitute source is rapidly increasing due to its unique properties, which include the absence of religious restrictions, a low molecular weight, no risk of disease transmission, biocompatibility, and ease of absorption by the body system. This review discusses recent research on collagen extraction from marine-based raw material, specifically fish by-products. Furthermore, pretreatment on various sources of fish materials, followed by extraction methods, was described. The extraction procedures for acid soluble collagen (ASC) and pepsin soluble collagen (PSC) for fish collagen isolation are specifically discussed and compared. As a result, the efficacy of collagen yield was also demonstrated. The recent trend of extracting fish collagen from marine biomaterials has been summarized, with the potential to be exploited as a wound healing agent in pharmaceutical applications. Furthermore, background information on collagen and characterization techniques primarily related to the composition, properties, and structure of fish collagen are discussed.