

## **Bioactive peptides and its alternative processes: A review**

### **ABSTRACT**

Bioactive peptides are molecules of paramount importance with significant health benefits. These bioactive peptides extracted from various food sources demonstrated significant bioactivity and potency, including angiotensin-converting enzyme inhibitors, antioxidants, opioids, and antimicrobials. However, various challenges hindered the industrial-scale production of peptides, such as the sensory performance of peptides due to bitterness, low peptides bioavailability and yield, minimal human tests, unconfirmed molecular mechanisms, and the sustainability of the resources for mass production. The emerging alternative processes such as high hydrostatic pressure, microwave, ultrasound, sub- and supercritical fluids are selectively beneficial, albeit time-consuming and expensive. The diversity of the properties of bioactive peptides complicates the design of the appropriate purification steps, particularly for novel peptides. The integrative process by coupling the production and purification of bioactive peptides to a single integrative system can be a way forward for bioactive peptides production with high purity, potency, and cost-effectiveness. Thus, the review provides a comprehensive insight into the current status, trends, and challenges of bioactive peptide production through conventional and emerging processes.