Polyphenol compounds from pomegranate (Punica granatum) extracted via various methods and its application on meat and meat products: a review

ABSTRACT

Recently natural polyphenol compounds (PCs) of plants, gained wide consideration of scientists, companies and public people because of its unique pharmaceutical and preservative benefits in the physiological system. They can prevent mortal and serious diseases such as cancer, cardiovascular and Alzheimer. However, defining a suitable source of PCs and their proper, economic and efficient extraction method are still a challenge. The aim of this study was to review PCs as an important antioxidant, the significance of pomegranate as a source of natural PCs and its application in meat and meat product. This study also covers different types of PCs extraction methods such as solid-liquid extraction (SLE) method as a conventional extraction which using Soxhlet apparatus and several solvents and advanced methods such as microwave-assisted extraction (MAE), supercritical fluid extraction (SFE), accelerated solvent extraction (ASE), ultrasound-assisted extraction (UAE) and high hydrostatic pressure extraction (HHPE). Simple and developed analytical method of PCs is also reviewed in the study. SLE method is an easy and simple method but, it uses lots of chemicals and is not suitable for all kinds of PCs extraction. UAE is using for quick extraction PCs, SFE is green extraction method uses less solvent and have a good result but it needs high technology. ASE method is a proper alternative for Soxhlet extraction method for its quick result. MAE method has high extraction result but is not suitable for some thermolabile PCs. Several parts of pomegranate showed antioxidant and antimicrobial traits for shelf life extension of meat and meat product. Pomegranate peel is the strongest antioxidant followed by pomegranate juice and seed. Pomegranate peel prolonged chilled chicken meat shelf live up to three weeks.

Keyword: Antioxidants; Polyphenol; Extraction methods; Pomegranate; Meat