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Physicochemical Characterization of Ginger(*Zingiber Officinale* Rosc.) Extracts Depending on High-Pressure and Enzyme Processing Parameter

Dong-Geon Nam, Mina Kim, Youngmin Choi, Sang Hoon Lee, SooMuk Cho and Ae-Jin Choi*

Functional Food & Nutrition Division, National Institute of Agricultural Science, Rural Development Administration, Wanju 55365, Korea

Ginger(*Zingiber officinale* Rosc.) is a common dietary adjunct that contributes to the taste and flavor of foods, and is also an important traditional Korea medicine. Ginger also possesses numerous significant pharmacological properties such as immunomodulatory, anti-inflammatory, anti-microbial, anticarcinogenic, analgesic, anti-hyperglycemic, anti-apoptotic, and antioxidant activities. The objectives of this study were to characterize physicochemical properties of ginger depending on the high-pressure and enzyme processing (HPEN) condition such as reaction time (1, 2, 3 hr), pressure (50, 70, 100 MPa) and cell wall degradation enzyme (1% w/v of substrate, hemicellulase, cellulase, pectinase, glucosidase etc.) and to investigate the optimum condition of extract processing to increase solubilization efficiency of 6-gingerol and polysaccharides. The optimum condition of high-pressure and enzyme processing was selected with Pectinex SP-L (Pec) enzymes for 2 hour at 50 and 100MPa. Water soluble index, total polyphenol and total flavonoid of HPEN treated with Pec were 70.67%, 2.55% and 0.73%, respectively; it was significantly higher above 1.1 times than those of EN (only enzyme processing, 58.56%, 2.37%, 0.68%). However, the 6-gingerols contents of HPEN and EN were 1.15~1.18% and 1.22~1.23%, respectively; it was increased above 2.5 times compared to CON (reflux extract, 0.45%) and showed a significantly difference ($p < 0.001$). Consequently, the high-pressure and enzymatic approach described in this study would be beneficial to food industries for developing product of various ginger application.

Biography:

Ae-Jin Choi has her expertise in evaluation and passion in developing functional ingredients using food processing technology. Her new food processing technology such as high hydrostatic pressure, enzymatic processing creates new approach methods for improving extract efficiency. She has developed this processing after years of experience in research and evaluation both in industry and research institutions. This processing is also applied to *Angelica gigas* Nakai and *Artemisia argyi*, it was confirmed that the extraction yield of index components was increased. This approach could be a good technology for functional food industry to save their production costs.