Abstract

The influence of different treatments, i.e., crushing, high temperature short time (90 °C/4 min) (HTST) and low temperature long time (60 °C/40 min) (LTLT) blanching, acidification (pH 4.3), and sequences of these treatments on the folate poly-γ-glutamate profile and stability were investigated. In this study, broccoli was used as a case study. Regarding the folate poly-γ-glutamate profile, endogenous folate poly-γ-glutamates in broccoli florets were found predominantly as hepta- and hexa-γ-glutamates. Crushing raw broccoli, acidification and LTLT blanching enhanced folate deconjugation resulting in monoglutamate, di- and tri-γ-glutamates. Compared to other treatments, HTST blanching preformed prior to crushing resulted in the highest concentration of long chain poly-γ-glutamates. Regarding folate poly-γ-glutamates stability, acidification combined with LTLT blanching decreased folate stability whereas HTST blanching combined with different sequences of blanching and crushing did not affect folate poly-γ-glutamates stability. It was concluded that crushing (prior to heating), acidification and blanching could be strategically applied to increase the folate monoglutamate content of broccoli.