Effects of Microwave Blanching vs. Boiling Water Blanching on Retention of Selected Water-soluble Vitamins in Turnip Greens Using HPLC


Blanching is an effective way of preserving fruits and vegetables. However, it has been shown that conventional boiling water blanching of vegetables results in the leaching of water-soluble vitamins. This experiment was designed to determine the effectiveness of different blanching methods in the retention of selected water-soluble vitamins in turnip greens.

The objective was to employ a HPLC method in the determination of the level of selected water-soluble vitamins in turnip greens that have been blanched using conventional and microwave blanching methods.

Turnip greens (Brassica rapa) were purchased from a local supermarket. They were thoroughly washed, chopped and separated into three treatment groups including unblanched (UB) which served as control; boiling water blanched (BWB); and microwave (1300 watts) blanched (MWB). A 100 gm sample from each treatment group was subjected to blanching treatment (according to designation) for 5 minutes. The samples were cooled in iced-water and an extract prepared using a modification of a method previously described by Russell (1986). A 10µl sample (in duplicate) from each treatment extract was separately injected in a Varian ® HPLC with a C_{18} column and a UV detector set at 272nm. Concentrations of ascorbic acid, folic acid, thiamin and riboflavin were determined using external standards.

The result showed that, compared to control samples, BWB lost 16% ascorbic acid, and 100% folic acid, thiamin and riboflavin while MWB lost 28.8% ascorbic acid, 25.7% folic acid 16.9% thiamin and 7.2% riboflavin.

The results indicate that MWB is more effective in the retaining the selected water-soluble vitamins with the exception of ascorbic acid. This is also in congruence with earlier findings indication that microwave blanching is more effective in retaining nutrients in vegetables.