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

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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 10 μ l sample (in duplicate) from each treatment extract was separately injected in a Varian® HPLC with a C₁₈ 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.