

Abstract

Leaf Amaranth (*Amaranthus* spp.) is regarded as one of the most nutritious vegetables in western Kenya and is often grown in mixtures with other crops. The leaves contain 17.5 to 38.3% dry matter protein and significant levels of Vitamin A and C among other nutrients. However, the quality of leaf amaranth is largely influenced by management practices and environmental factors and thus research is necessary to identify and develop a sustainable management system that will optimize and stabilize the crop's potential. Field experiments were conducted in three sites of western Kenya in 2006 and 2007 where amaranth (*A. dubius*) was intercropped with the improved dual-purpose soybean (*Glycine max*) using single and double rows for two seasons in a split-split-plot design. Sole amaranth crop was used as control. Amaranth leaves were harvested for six weeks at weekly intervals and data analyzed using split-split-plot ANOVA. Protein and β -carotene content of amaranth leaves differed significantly ($P < 0.05$) in different environments and cropping systems, with the highest values obtained from site A and in double row intercrops. However, while amaranth leaf protein content decreased and β -carotene content increased with harvest intervals in all sites and cropping systems, the effect was not significant. Intercropping amaranth with soybean using double rows has shown potential to enhance protein and β -carotene content compared to single row intercrops and sole crop. Similarly, different environments and harvest times could vary the proximate composition of the leafy vegetable.