

# Processing methods and nutritional quality of dried amaranth (*Amaranthus* spp. L) leaves: A review

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## Abstract

Postharvest losses of vegetables are major challenge for the vegetable industry. Postharvest losses of leafy vegetables are as high as 20-50% of production. The use of dried vegetables is a popular, and traditional, but understudied remedy. Vegetable amaranths are popular in African and Asian countries where leaves are mostly bundled fresh; drying is encouraged as an alternative to prolong the postharvest shelf life. Amaranths have excellent nutritional value because of their high essential micronutrients such as beta-carotene, iron, calcium, vitamin C and folic acid. They also have lysine, an essential amino acid in the range of 6 g 100 g<sup>-1</sup> DW protein, which is similar to the recommended FAO/WHO standards and is often lacking in human diets. The review highlights drying methods for vegetable amaranths and their effect on the nutritional quality. Literature was sourced from journal articles, reports, books, online library, and extension fact sheets from Universities websites. Dried leaves are preserved to prevent microorganism infestations and to concentrate nutrients for later use. Amaranths are preserved by sun, shade, solar, cabinet, oven, freeze, infrared and vacuum drying methods. Nutrient retention in solar dried leaves is higher than sun and oven dried leaves. We recommend the use of solar and shade drying for longer and shorter period storage of amaranth leaves respectively. However for higher retention of  $\beta$  - carotene and ascorbic acid, cabinet drying should be employed. Drying is advocated for year round supply of nutrient rich amaranth leaves in developing countries.

**Keywords:** amaranths, drying methods, malnutrition, nutritional value, postharvest losses.