

Title Shade nets affect the quality of baby spinach
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Abstract

The main aim of this study was to investigate how shading affects the content of some bioactive compounds in baby spinach and the retention of quality postharvest. A high intake of fruits and vegetables is associated with a decreased risk of contracting some chronic diseases, and this has been attributed to their relatively high content of some bioactive compounds. Shade nets are used in order to protect crops against severe weather conditions like hail or too much sunlight, but also to prevent long-day plants such as spinach from bolting during the summer. However, little is known how these types of nets affect the biochemical quality of the crops. Spinach was cultivated on field beds in southern Sweden and covered with three kinds of shade nets with different spectral influence. The experiment was repeated twice during different times of the season. The concentrations of carotenoids, flavonoids, chlorophyll, and vitamin C (ascorbic acid and dehydroascorbic acid) were determined in freshly harvested leaves and after storage in trays covered with polypropylene films at 2°C and 10°C for up to nine days in darkness. Total carotenoid concentration as well as chlorophyll concentration were most often higher in the leaves that had been covered, and the responses varied somewhat among the nets. The concentration of carotenoids increased or remained stable during storage for six days but sometimes decreased during the last three days of storage. Vitamin C and ascorbic acid concentrations were higher in the uncovered plants in spring, but not in autumn.