Title Glucoraphanin and flavonoid levels remain stable during simulated transport and marketing of broccoli (*Brassica oleracea* var. *italica*) heads

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Abstract

Fresh broccoli heads contain relatively high levels of beneficial phytochemicals, particularly glucosinolates and flavonoids, but it is not clear whether or not the levels are affected by postharvest handling conditions. Accordingly, broccoli heads (*Brassica oleracea* var. *italica*) were stored at temperatures of 1 or 4 °C, 99% relative humidity (RH), for 2, 7, 14 or 28 days to simulate domestic and export transport conditions. After removal from cool storage, heads were then placed at 8, 15 or 20 °C, with 99, 90 or 70% RH, respectively, for 3 days to simulate marketing conditions. At the end of both phases, heads were rated for visual quality, turgor, presence of rots and yellowing, and the contents of glucoraphanin, quercetin and kaempferol were measured. Visual quality declined significantly with increasing temperature and length of storage, caused primarily by increasing yellowing and loss of turgor. Glucoraphanin, quercetin and kaempferol contents were not significantly affected by storage and marketing temperature and time. These results suggest that current transport and marketing practices are not likely to have a deleterious effect on the levels of aliphatic glucosinolates and flavonols in broccoli.