

**Title** Phenolic compounds, antioxidant activity and other quality related criteria of ‘Summerred’ apples as influenced by postharvest storage conditions

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**Keyword** phenolic compounds; antioxidant activity; Summerred apple

### **Abstract**

‘Summerred’ apples were harvested and stored in normal atmosphere (NA:21% O<sub>2</sub> + 0.2-0.5% CO<sub>2</sub>) or controlled atmosphere (CA: 1-1.5% O<sub>2</sub> + 1-1.5% CO<sub>2</sub>) at two different temperatures (1°C and 5°C) for four months. The apples were analysed for phenolic compounds (chlorogenic acid, epicatechin, procyanidin B1 and B2, phloridzin, quercetin 3-glycosides and cyaniding 3-glycosides and cyaniding 3- galactoside), antioxidant activity (FRAP and ORAC assay), ascorbic acid, soluble solids, titratable acidity, Ph, firmness, starch content, ground colour and red skin colour. Apples stored in CA at 1°C showed higher values of soluble solids, titratable acidity, and ascorbic acid and were more firm than apples stored in NA at 5°C. Weight loss in apples was lower in CA compared to NA. Storage conditions had little effect on the content of phenolic compounds. However, slightly higher values of cyaniding 3- galactoside were found in apples stored at 1°C regardless of atmosphere, whereas the combination of 1°C and CA gave higher values of chlorogenic acid. The antioxidant activity of the apples was not influenced by any of the storage conditions. All in all, storage conditions such as atmosphere and temperature appear to have more influence on the quality criteria related to taste and appearance than on the health value of ‘Summerred’ apples.