

**Title** Antioxidant activity in tomato (*Lycopersicon esculentum* Mill.) and broccoli (*Brassica oleracea* var. *Italica* L.) cultivars - effects of maturity and storage conditions

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### Abstract

The tomato is one of the most important vegetables worldwide because of its high consumption, year round availability and large content of health related components. Broccoli has shown to be rich in antioxidants. The vegetables were grown at the Norwegian University of Life Sciences (59°40'N). Greenhouse grown tomatoes cvs. 'Durinta', 'Favorita' (cherry tomato) and 'Liberto' were harvested green and vine ripe. Colour measurements ( $L^*$ ,  $a^*$ ,  $b^*$ ) and chemical analyses were performed on green, postharvest red and vine ripe tomatoes. Fruits were analysed for antioxidant activity, soluble solids, titratable acidity, dry matter and L-ascorbic acid. Green unripe tomatoes contained considerably less antioxidants than ripe fruits. Postharvest and vine-ripened fruits had higher values of titratable acidity, dry matter, soluble solids, antioxidant activity and L-ascorbic acid. There were no significant differences in the antioxidant activity between postharvest ripened and vine ripened tomatoes. 'Favorita' tomatoes were higher in antioxidant activity, L-ascorbic acid, dry matter, soluble solids and titratable acidity than the other cultivars. Field grown broccoli heads (cvs. 'Lord', 'Maraton', 'Montop') were stored at 1 and 5°C in either controlled atmosphere (2% O<sub>2</sub>/6% CO<sub>2</sub> and 0.5–1% O<sub>2</sub>/10% CO<sub>2</sub>) or air for 4 weeks. The heads were analysed for total antioxidant activity, L-ascorbic acid and dry matter at the time of harvest and after storage. There was a considerable overlap between the different temperatures and storage atmospheres. The antioxidant activity and L-ascorbic acid content increased during storage.