

## DETERMINATION OF CITRULLINE CONTENT AND ANTIOXIDANT ACTIVITY IN MELONS FOR GREEN CONSUMPTION

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The “meloncella”, typical culture of Salento, together with “carosello” and “barattiere”, characteristic of Bari and Taranto areas, are plants in the gourd family *Cucurbitaceae* and in the same genus as the muskmelon (*Cucumis melo* L.). They produce green refreshing summer fruits widely eaten by local people raw as such or salad dressed when still unripe. For this reason they are known as melons for green consumption (Laghetti *et al.*, 2008). Like all plant foods, these fruits contribute in supplying the human body with many important nutritional compounds and antioxidants. Among these, citrulline, a non-essential and non-proteic amino acid, is present in significant amount in the *Cucurbitaceae*. In mammals, citrulline is involved in cell metabolism and organ functionality; in plants, it is important in nitrogen transport and drought tolerance. Recently citrulline was shown to play a key role in nitric oxide metabolism and regulation, thus being essential in many physiological processes (Curis *et al.*, 2005).

In this study we evaluated the content of citrulline and the antioxidant activity in the fruits of four different cultivars of green consumption melons grown in Puglia traditionally known as: “meloncella leccese”, “carosello mezzo lungo di Polignano”, “barattiere” and “carosello cetriolo”.

Extraction and spectrophotometric determination of the citrulline was performed by the method of Knipp & Vašák (2000). The hydrophilic and lipophilic antioxidant activities were evaluated using two different methods, the Trolox Equivalent Antioxidant Capacity (TEAC) assay and the Ferric Reducing Antioxidant Power (FRAP) assay, as previously described (Tlili *et al.*, 2011). Total antioxidant activities were calculated as the sum of the values measured in the hydrophilic and lipophilic phases.

The obtained data showed that the amount of citrulline was very similar in all the cultivar assayed. On a fresh weight (f.w.) basis no statistically significant variability was observed in the content of citrulline among cultivars that averaged approximately 11.0 mg/100 g f.w.. In contrast, on a dry weight (d.w.) basis, the amount of citrulline detected in the “meloncella leccese” (213 mg/100 g d.w.) was significantly higher than that of the other cultivars (~ 167 mg/100 g d.w.). Both methods to measure the antioxidant activity (TEAC and FRAP) showed significant differences among cultivars. The highest total antioxidant activity was recorded in the “carosello mezzo lungo di Polignano”, followed by the “meloncella leccese”, the “barattiere” and the “carosello cetriolo”. In all samples, the antioxidant activity was mainly due to the hydrophilic fraction which contributed about 67% to 88% of the total.

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