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Determination of lycopene content in raw tomatoes

Plant material: *Solanum lycopersicum*, type "velanidi"

Producer of plant material: AGAN EPE

Method of analysis: A spectrophotometric method was employed for the determination of lycopene content. Samples were first chopped and homogenized in a laboratory homogenizer. Approximately 0.3 to 0.6 g of the homogenized samples were weighed in Erlenmayer flasks and 5 mL of 0.05% (w/v) BHT in acetone, 5 mL of ethanol and 10 mL of hexane were added. The flasks were placed in an ice bath and stirred on a magnetic stirring plate for 15 min. After shaking, 3 mL of deionized water were added to each flask and the samples were shaken for 5 min on ice. Samples were then left at room temperature for 5 min to allow the separation of both phases. The absorbance of the hexane layer (upper layer) was measured in a 1-cm-path-length quartz cuvette at 503 nm using hexane as a blank. The lycopene content was calculated using its molar extinction coefficient in hexane ($17.2 \cdot 10^4$ $M^{-1} \cdot cm^{-1}$) determined in the literature (Markovic, K.; Hruskar, M.; Vahcic, N. *Nutr. Res.* **2006,** *26*, 556–560). In this case, the Lambert–Beer law can be described as:

Absorbance at 503 nm (A_{503}) = $\varepsilon(M^{-1} \cdot cm^{-1}) \cdot b(cm) \cdot$[Lycopene concentration (M)]

By properly substituting the molar extinction coefficient of lycopene in hexane ($17.2 \cdot 10^4$ $M^{-1} \cdot cm^{-1}$), as well as its molecular weight (536.9 g) and by changing the units, the final equation is:

Lycopene content (mg/kg) = A_{503} 31.2/g tissue

The analysis was performed in five individual tomato samples.

Lycopene content (mg/kg): 56.4 ± 5.2