



Mineral composition of 'sweetheart' cherry using inductively coupled plasma atomic emission spectroscopy

Paulo L, Antunes P, Miguel Pintado C

CATAA – Associação Centro de Apoio Tecnológico Agro Alimentar, Zona Industrial de Castelo Branco, Rua A, Castelo Branco, Portugal

Introduction

Portugal produces more than 15 thousand tons of cherries per year and it is in the Beira Interior region where this fruit is more cultivated. The production of the Cova da Beira cherry covers a geographic area of approximately 1374 km², which includes the counties of Fundão, Covilhã and Belmonte. The fruit selected for this study was 'Sweetheart', a late variety with a unique taste and a firm fruit that is crunchy when picked and eaten. Only little is known about the mineral content of sweet cherries. The aim of this work was studied the mineral profile of 'Sweetheart' cultivar from Cova da Beira (Portugal).

Methods



Results

Table 1- Mineral composition of sweet cherry (generally accepted values) and daily reference intakes (DDR) for minerals.

Element	Concentration ¹ mg / 100 g wet weight	DDR ² (mg)
Ca	13	800
Cu	0.060	1
Fe	0.36	14
K	222	2000
Mg	11	375
Mn	0.070	2
Na	0	---
P	21	700
Zn	0.070	10

1 Source: USDA Nutrient database, 2013.

2. Source: Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011.

Table 2- Mean concentration and Z-score of minerals in two reference materials.

Reference Materials	Element	Concentration mg / 100 g wet weight	Reference Concentration mg / 100 g wet weight	SD	Z-score
Reference 1	Ca	32	32	4	0.00
	Cu	0.47	0.49	0.10	-0.12
	Fe	6.5	6.3	0.8	0.14
	K	367	365	18	0.07
	Mg	132	122	6	0.82
	Mn	1.5	1.6	0.3	-0.01
	Na	253	259	13	-0.24
	P	293	281	14	0.42
Reference 2	Zn	1.5	1.6	0.1	-0.30
	Ca	6.1	5	3	0.22
	K	133	133	7	0.00
	Mg	6.0	5	1	0.50
	P	15	12	2	1.0

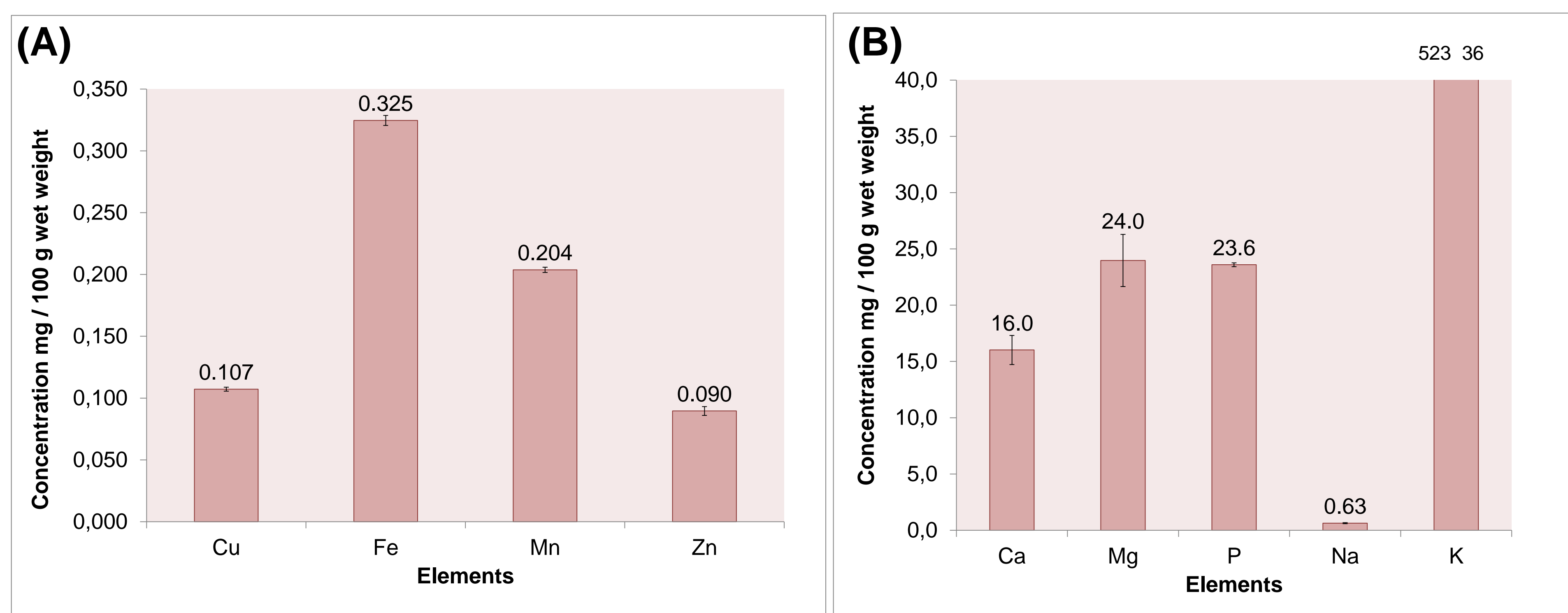


Fig. 1 – Mean concentrations standard deviation (mg / 100 g wet weight) of (A) minor elements (Cu, Fe, Mn and Zn) and (B) major elements (Ca, Mg, P, Na and K) in 'Sweetheart' cherry samples.

Conclusions

- This investigation indicates that ICP-AES technique is suitable for determination of Ca, Cu, Fe, K, Mg, Mn, Na, P and Zn in 'Sweetheart' cherries from Cova da Beira (Portugal).
- The present study indicates that the 'Sweetheart' cherry has low levels of Na, medium levels of Cu, Fe, Mn, Zn, Ca, and P and high in K and Mg. Moreover, regarding K, a portion of 100 g of cherries (edible part) contains 26 % of the daily reference intake.
- Therefore we can consider that this cultivar has an interest in nutritional terms, which may contribute to the enhancement of 'Sweetheart' cherry from the Cova da Beira region.
- Consumption of cherries on regular basis can be recommended for intake of appropriate amounts of dietary macro- and micro- elements to combat minerals deficiency.

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