

**Does the coffee preparation
method affect the antioxidant
compound content? A
preliminary study**

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Introduction: Coffee

“one of the most widely consumed beverages in the world and one of the most traded commodities globally”

FAO¹

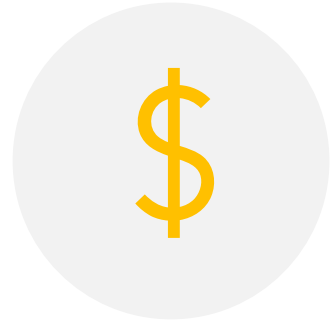
- ❖ Source of antioxidants in the diet of many countries².
- ❖ Moderate consumption leads to health Benefits².
- ❖ The traditional coffee market is divided into two sectors: commercial coffees and specialty coffees³.
- ❖ There are different extraction methods due to the geographic, cultural, and social context⁴.

Colombia



Specialty

Recognized by the specialty coffee market³.



Economy

1% GDP
15% agricultural GDP⁵



Production

Constant production through the year⁶

Colombia

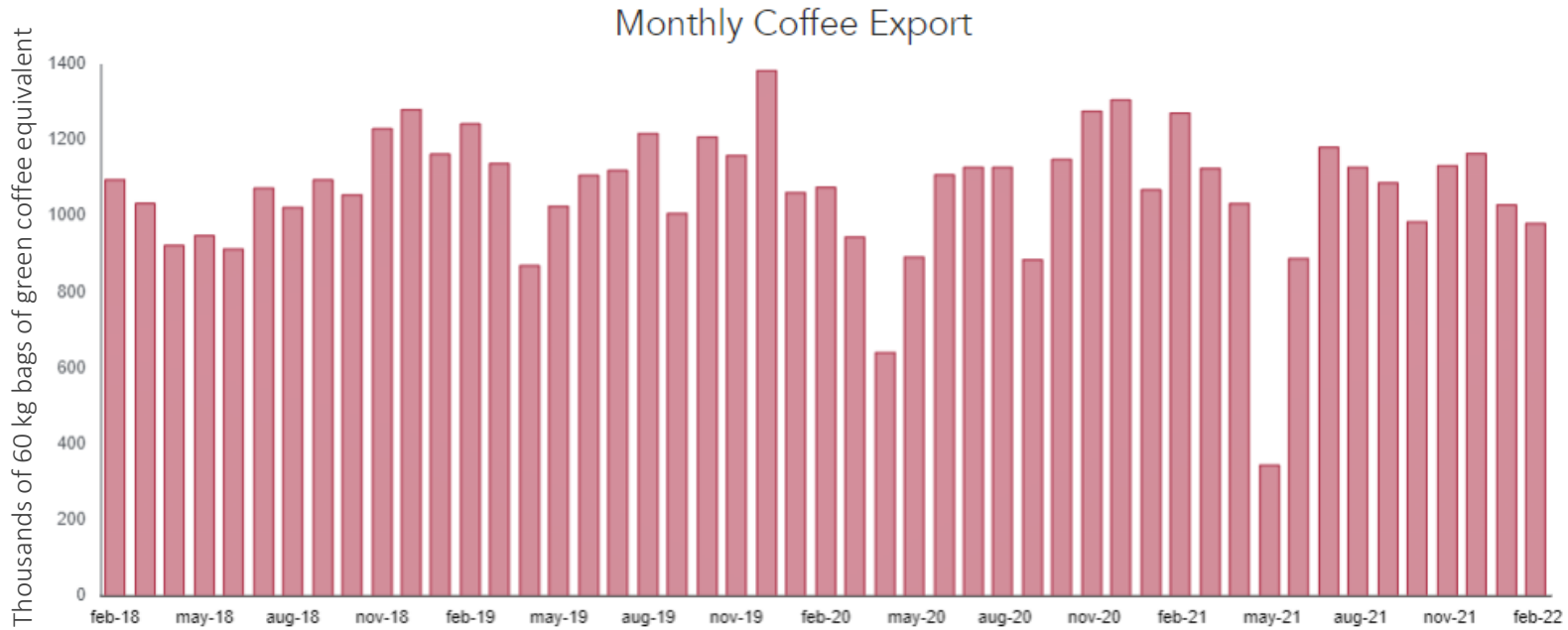


Figure 1. Monthly green coffee exports equivalent in thousands of 60 kg bags⁶

Coffee production

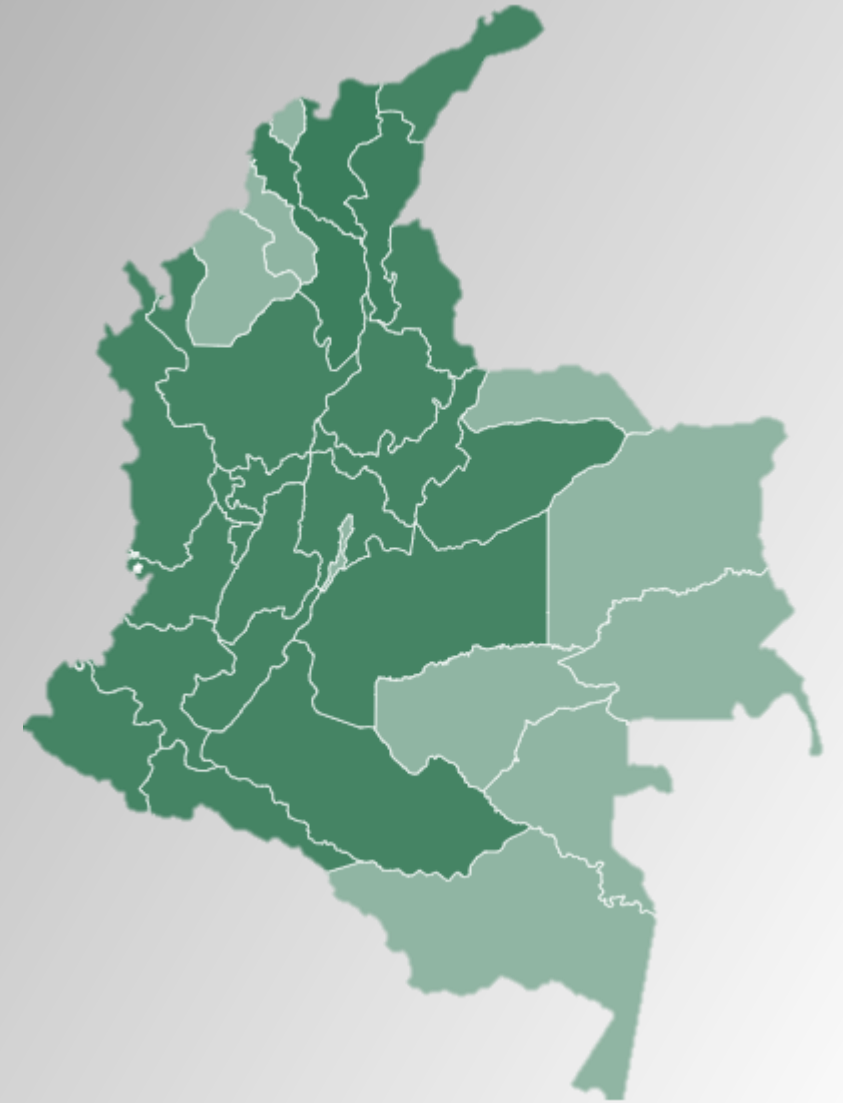


Figure 2. Regions with most production⁵.

Objective

To evaluate the effect of two preparation methods (pot and V60), and the type of coffee (commercial, specialty) over the antioxidant capacity content.

Methodology

Factorial design 2²



Pot

Immersion method

10 g coffee

+ 150 mL water (4 min)

Preparation method



V60

Filtration method

10 g coffee

+ 30 mL water (30 sec)

+50 mL water (50 sec)

+70 mL water

Type of coffee



Commercial

Aguila Roja

Medium particle size
(around 0,43 mm)



Specialty

Amor perfecto
(Gourmet)

Methodology

For the quantification of total phenolic content and the antioxidant activity, the following methods were used:



Folin-ciocalteu⁷

Gallic acid (curve standard)

Folin-ciocalteu reactive

Sodium carbonate

765 nm



DPPH⁸

Trolox (curve standard)

DPPH

Absolute ethanol

517 nm



ABTS⁹

Trolox (curve standard)

ABTS

Potassium persulfate

Absolute ethanol

734 nm

Results



Janda et al (2020)
Várady et al (2020)

Table 1. Total phenolic content (TPC) and antioxidant capacity using a 1:15 ratio for commercial and specialty coffee.

Type of coffee	Preparation method	Folin	DPPH	ABTS
-	-	mg GAE/serving	mmol TE /serving	
Commercial	Pot	522,84 ^A ± 27,34	2,18 ^A ± 0,03	2,20 ^{AB} ± 0,16
	V60	531,36 ^A ± 28,90	2,15 ^A ± 0,06	2,28 ^A ± 0,12
Specialty	Pot	395,33 ^B ± 19,87	1,71 ^B ± 0,19	1,66 ^{AB} ± 0,02
	V60	343,33 ^B ± 1,12	1,89 ^{AB} ± 0,02	1,56 ^B ± 0,25



Taste?

Results

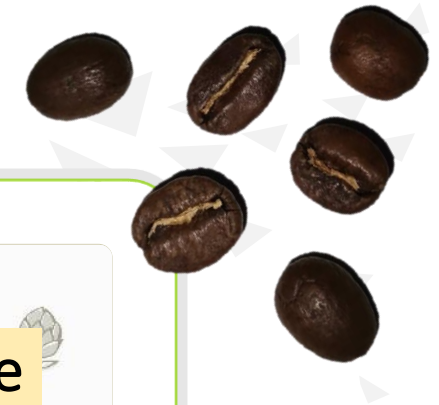


Table 2. Total phenolic content (TPC) and antioxidant capacity using a 1:20 ratio for commercial and a 1:15 ratio for specialty coffee.

Type of coffee	Preparation method	Folin	DPPH	ABTS
-	-	mg GAE/serving	mmol TE /serving	
Commercial	Pot	395,15 ^A ± 35,33	1,58 ^A ± 0,04	1,68 ^A ± 0,05
	V60	411,07 ^A ± 18,26	1,73 ^A ± 0,02	1,86 ^A ± 0,05
Specialty	Pot	395,33 ^A ± 19,87	1,71 ^A ± 0,19	1,66 ^A ± 0,02
	V60	343,33 ^A ± 1,12	1,89 ^A ± 0,02	1,80 ^A ± 0,16



For commercial coffee, is necessary a more diluted ratio.
Ratio 1:15 (specialty) and 1:20 (commercial).
Non significant differences.



Conclusion



Using the same coffee/water ratio, the preparation method does not affect the functional compounds extractions and the antioxidant capacity.

Coffee beverage functionality depends on the coffee/water ratio, therefore, according to the type of coffee it is necessary to take into account the taste to balance the sensorial experience with the beverage functionality.



Research Team

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Thank you

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