

Chemical characterization of Bluish-Black and Yellowish-White fruits of *Myrtus communis* L.

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Introduction

The myrtle (*Myrtus communis*) is a perennial aromatic shrub, always green, with an erect habit and fragrant flowering. The myrtle is a sacred tree in many ancient civilizations.

Myrtle is used in cosmetology for its cleansing and toning properties, particularly in anti-dandruff shampoos. The leaves have astringent properties thanks to their tannins. The essential oil was once used as a disinfectant, as a digestive stimulant and as a haemostatic.

Despite the wide uses of the plant, fruits of *M. communis* remain not valorized and little used. The aim of this study is the determination of some chemical properties of black and white fruits of *Myrtus communis* growing wild in Tunisia.



Material and methods

Black and white fruits of *Myrtus communis* were collected from North West of Tunisia.

Different treatments were applied to myrtle fruits: fruits without treatment (A), fruits soaked in water for one night (B), fruits soaked in water for two nights (C), fruits boiled in water (D) and fruits boiled in water and soaked for one night (E).

The obtained juices from berries were collected stored at 4°C for further analysis.

Titrateable Acidity (TA) and pH were measured. The total phenols content was determined by Folin Ciocalteu method, the total flavonoid content of juice was determined by the aluminium chloride colorimetric method and the total condensed tannin content was determined by vanillin method. The antioxidant capacity of the studied samples was determined applying the DPPH assay.

Statistical analysis of acidity showed high significant differences between the two types of fruits and between treatments.



Results

Statistical analysis of acidity showed high significant differences between the two types of fruits and between treatments,

The highest acidity value was recorded by white fruits (from 3.09 to 7.25 g citric acid/L). Analysis of total polyphenols content showed significant differences between the studied treatments.

Myrtle black berries contained highest amount of flavonoids when compared with white fruits. Results of condensed tannins demonstrated that the lowest amount was reached by fruits soaked in water for two nights (128.08 mg CE/mL and 233.72 mg CE/mL respectively for black and white berries) while untreated fruits showed the highest values.

For the antioxidant activity, no significant differences were recorded between fruits or treatments.

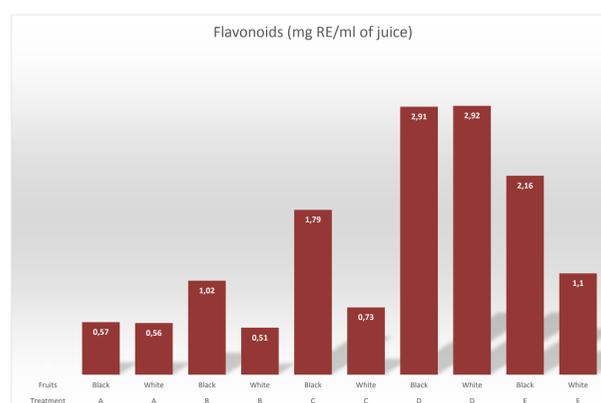
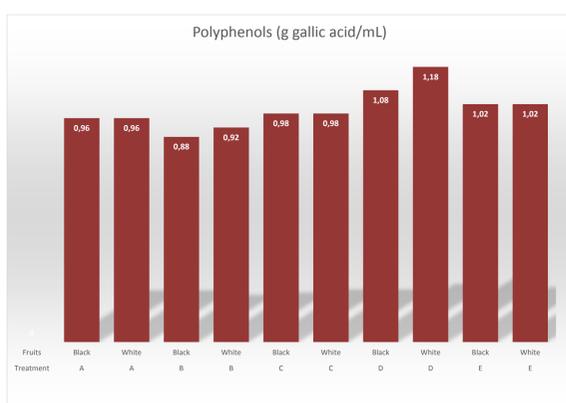


Table : Acidity and pH of Black and White fruits of *Myrtus communis* L.

Treatment	Fruits	Acidity (g citric acid/L)	pH
A	Black	3.73±0.14	4.21±0.02
	White	3.41±0.28	4.38±0.06
B	Black	3.2±0.21	4.04±0.04
	White	4.91±0.28	4.25±0.05
C	Black	3.09±0.36	4.42±0.01
	White	4.16±0.21	4.16±0.01
D	Black	4.05±0.14	4.55±0.06
	White	7.25±0.71	4.49±0.01
E	Black	4.69±0.28	4.58±0.05
	White	6.4±0.43	4.34±0.02

Conclusion

Myrtle berries are known by its astringent taste due to the high amount of tannins. In this study we demonstrated that soaking fruits in water could be a good solution to decrease tannins amount and consequently to reduce the astringency of berries. These fruits showed an important amount of flavonoids and polyphenols. They can be used in food industry.