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Incorporation of ash during traditional black olive processing: Effects on bioactive compounds and antioxidant activity

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INTRODUCTION & AIM

Conventina l styles

Alkali brines negatively impact the olive quality

Traditionnal methods preparation rarely used (limited data)

Olive table composition is closely related to the applied technique

Aim the effects of incorporation of ash during the olive processing on the bioactive compound and the antioxidant activity of three Algerian olive cultivars.

METHOD

Three cultivars

Harvest date February 2023

Bejaia Location (Northest Algeria

Harvested olives: fresh olives (two methods)

Incorporatio n of dry salt

Incorporatio n of ash

400g of fresh olives are Alternated with layers of dry salt (200g). were stored at room temperature for 30 to 50 days

fresh olives (80 g) was immersed in a solution prepared with ash and stored at room temperature for 30 to 50 days

Table: Studied olive samples

	Azeradj	Bouchouk	Chemlal
Fresh olives			
salted olives Process 1			
Treated olives with Ash			

Extracts preparation: solid-liquid extraction (Soufi et al, 2014)

Analytical methods:; colorimetric procedures: specific reactive

Bioactive compound

Total orthodiphenol s

Total phenolics

2. Antioxidant activity

Reducing power

DPPH

Iron ferrous activity

Used standards

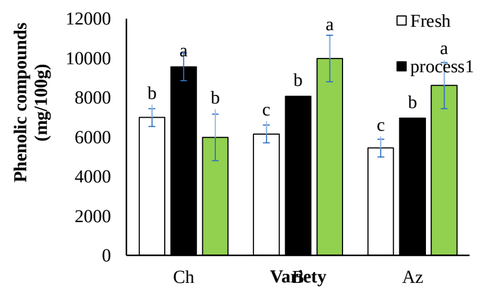
Orthodiphenols: caffeic acid

PC: Gallic acid

Reducing power: ascorbic acid equivalent

Statistical study
Three trials were carried out for each test. The statistical study consisted of an analysis of variance variance (ANOVA) using the Newman Keuls test and STATISTICA 5.5 software. The level of significance is estimated at probability $p<0.05$.

RESULTS & DISCUSSION



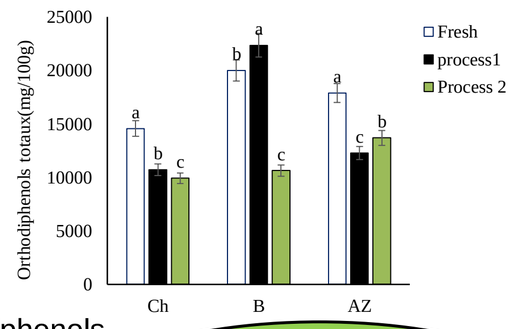


Fig 1 and 2 :Total phenolics and orthodiphenols

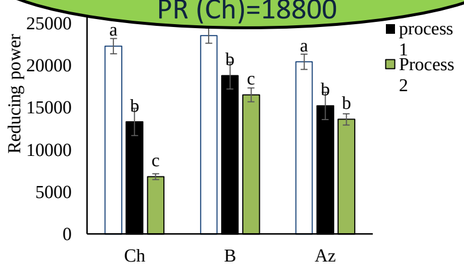
Fresh olives: CP= 6991 mg GAA/100g (Ch)

Similar to those of tunisian (Ben Othmane (2009) Mechi *et al.*,2023

Decrease after elaboration with ash CP(Ch), = 5983 but increase with those treated dry salt 9554

Decrease in RP after elaboration with dry salt PR (Ch)=18800

Other parameters affecting bioactive compounds: cultivar, cultural condition..



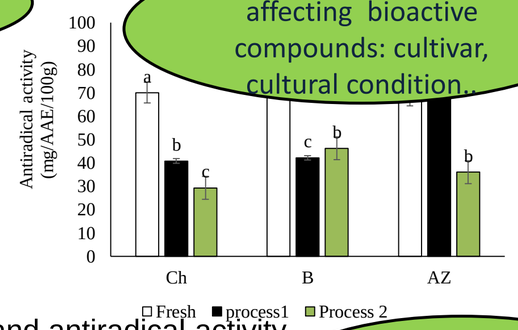


Fig 3 and 4: Reducing power and antiradical activity

FIA= average 70%

Dry Salted olives DPPH= 30% (Ch) and 68% (AZ)

Inhibition percent of olives treated with ash =65% (AZ+C) et 70% (B) while those dry salted= 63% (AZ+B), and 46% (Ch)

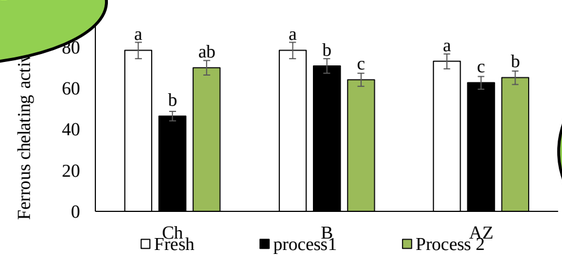


Fig 5: Iron ferrous activity

Elaboration by both methods induced a significant decrease in this activity with values varying according to the treatment applied. Extracts from olives treated with ash have a higher chelating activity than those obtained from olives treated with with dry salt5.

Processing has significant effect
The method using ashes showed a better yield
Bioactive compounds

Antiradical activity: 80%

hydrogen peroxide: 75%

CONCLUSION

The quality of such products prepared with natural and inexpensive ingredients which preserve their nutritional quality.

FUTURE WORK / REFERENCES

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