STUDY OF ANTIOXIDANT ACTIVITY AND PHENOLIC COMPOSITION OF THE EXTRACT OF PRICKLY PEAR CLADODES (Opuntia ficus indica) OF MOROCCAN ORIGIN

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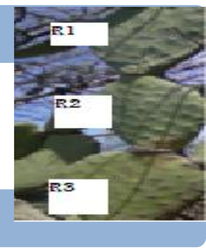
Introduction



The integration of the juice of prickly pear cladodes as health ingredient can be used by food industries (Butera et al. 2002). In this study of pasteurized juice cladodes of 5 region of Morocco, we measured the content of polyphenols (TPP) and antioxidant activity (AA) by three methods DPPH, FRAP and TEAC (P Stratil et al. 2006). We have also shown that there is an evolution of polyphenols and antioxidant activity at cladodes according to altitude (R1R2R3).

Methods

1-Dosage des Polytphénols Totaux

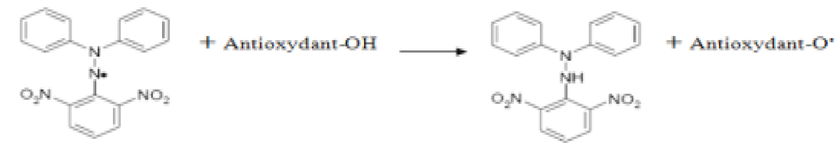
The determination of total polyphenols by the Folin-Ciocalteu was first described in 1999 (Singleton and Rossi)

2- Activité antioxydante

2-1-DPPH:

. test which measures the reducing capacity of the antioxidant to DPPH.

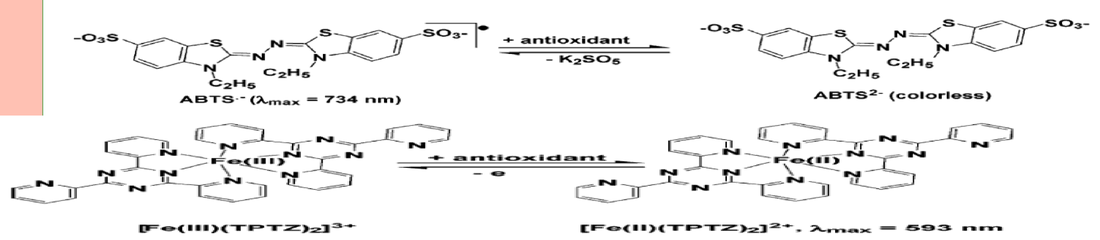
•Absorbance measurements at 517 nm for 1 h and calibration with a pure phenolic compound: Trolox.



2-2-TEAC

-Antioxidant capacity to stabilize the radical ABTS. + ABTS in +

-Reaction with phenolic compounds leading to discoloration. Colorimetric measurements at a given time (4 to 6 minute) Calibration with Trolox



2-3-FRAP

-ability to reduce iron juice.

-The absorbance was measured at 593 nm.

-The calibration curve is developed by different concentrations of FeSO4, 7H2O. The results are expressed in mmol Fe 2 + / L.

Results and discussion

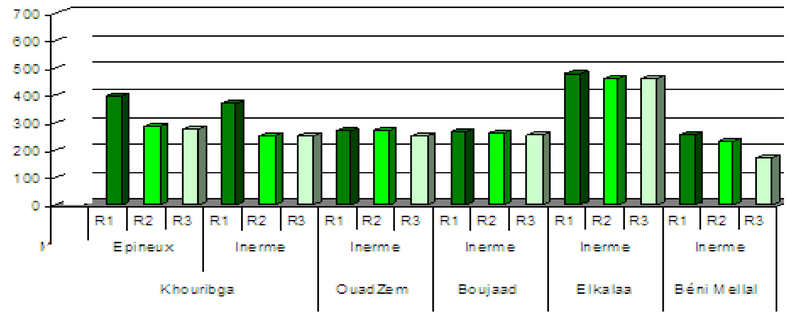


Table 1: Content PPT mg gallic acid / L juice fruit bats and different cultivars

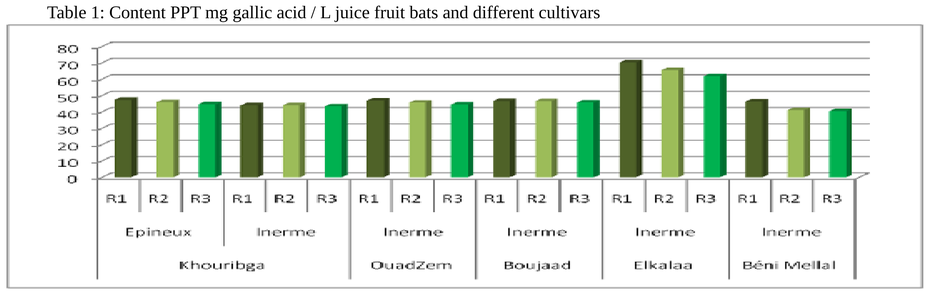


Table 2: Antioxidant activity by DPPH method (mg trolox/100g juice.).

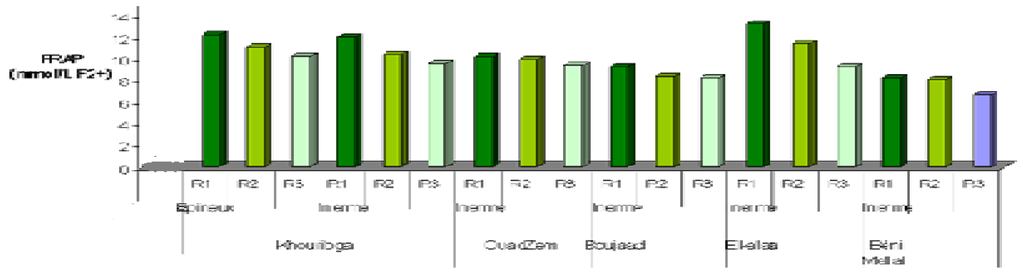


Table 3: Antioxidant activity by the FRAP method (mmol / L F2)

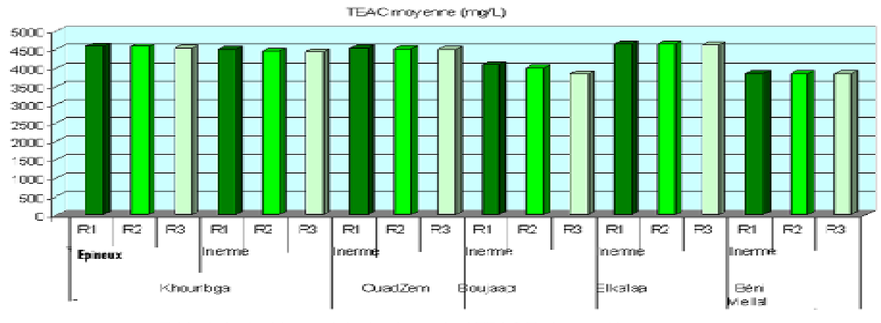


Table 4: Antioxidant activity by the method TEAC Trolox mg / l

Conclusion

➢The results show firstly that the extract of fruits and cladodes of Opuntia ficus indica cultivars Morocco is rich in polyphenols and has a very important antioxidant activity may be attributed to their phenolic composition.

➢ We also note that TPP (R1)> TPP (R2)> TPP (R3) and AA (R1)> AA (R2)> AA (R3)

➢And second, these results show a correlation between the methods (DPPH, TEAC, FRAP).

Citations

➢-Butera, D. ; Tesoriere, L. ; Di Gaudio, F. ; Bougiorno, A. ; Allegra,M. ; Pintaudi, A. M. ;Kohen, R. ;R., Livrea,M.A. ; 2002. Antioxidant activity of Sicilian prickly pear (Opuntia ficus-indica) fruit extracts and reducing properties of its betalains: betanin and indicaxanthin.Journal of Agricultur and Food Chemistry, 50; 689

➢-Singleton, V. L., Orthofer, R., & Lamuela-Raventos, R. M. (1999). Analysis of total phenols and other oxidation substrates and antioxidants by means of Folin–Ciocalteu reagent. Methods in Enzymology, 299, 152–178.

➢-Stratil P., Klejdus B., Kuban V. 2006. Determination of total phenolic compounds and their antioxidant activity in vagetables- evaluation of spectrophotometric methods. Journal Agricultural Food Chemistry; 54, 607-616.