EXTRACTION AND SEPARATION OF BIOACTIVE COMPOUNDS AND EVALUATION OF ANTIOXIDANT ACTIVITY OF *A. aristata* PLANT EXTRACTS

Asma Abid, Mahdi Belguidoum, Asma Nacib, Messaouda Dekmouche, Tatou Touahria, Lazher Bachki

1 Laboratoire de valorisation et promotion des ressources sahariennes (VPRS), Université de Kasdi Merbah, Ouargla, Algérie.

Abstract

Natural products from medicinal plants, as pure compounds or as extracts, provide unlimited opportunities for new drug leads because of the unmatched availability of chemical diversity. Recently, there has been a renewed interest in natural product research due to the failure of alternative drug discovery methods to deliver many compounds in key therapeutic areas to different diseases. To continue to be competitive with other drug discovery methods, natural product research needs to continually improve the speed of the screening, isolation, and structure elucidation processes. The aim of this study is on the application of analytical methodologies, which include extraction, isolation of natural compounds and the evaluation of antioxidant activity.

KEYWORDS: Bioactive compounds, A. aristata, separation, Antioxidant activity, DPPH, ABTS.

Methodology

Extraction protocol

Figure 1: Extraction Protocol of phenolic compounds

Isolation and purification of pure compounds :

Separation of bioactive compounds from dichloromethane extract was applied by column chromatography by SiO2 as stationary phase using (dichloromethane: MeOH) (100:0 to 0:100) as mobile phase, and purification by PTLC

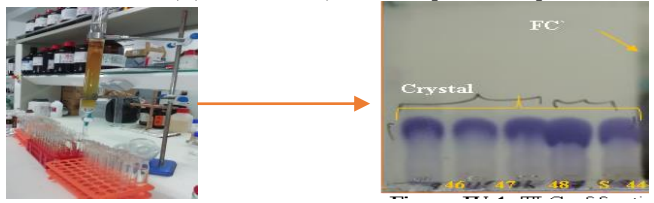
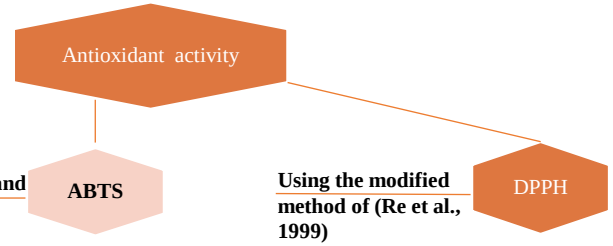


Figure 2: isolation and purification of dichloromethane extract .



Resaults

The results obtained indicate that the extracts have a very good antioxidant activity. In two methods tested to evaluate the antioxidant activity, ethyl acetate extract displayed the highest antioxidant capacity (IC50 value: 0.097 ± 0.003 mg/ml in DPPH assay and IC50 value: 0.077 ± 0.003 mg/ml in ABTS assay).

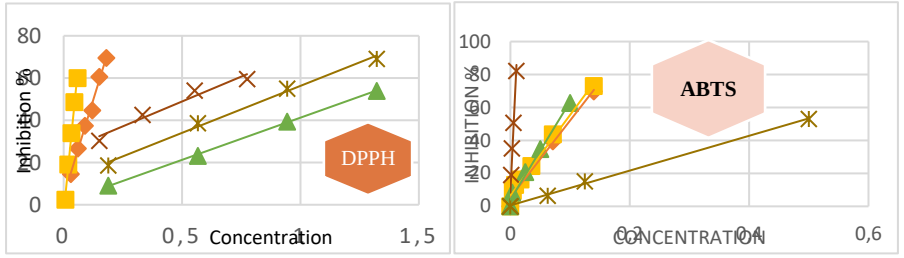
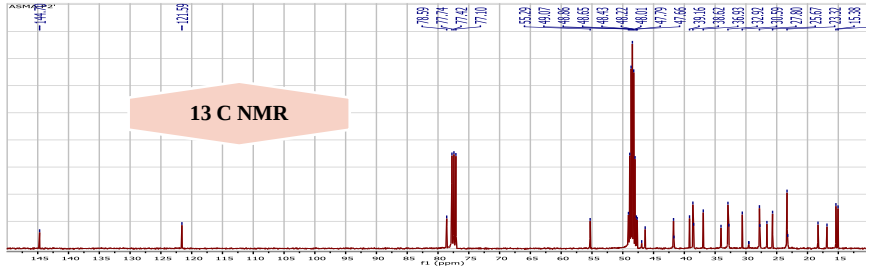


Figure 3: results of antioxidant activity of *A. aristata* extracts.



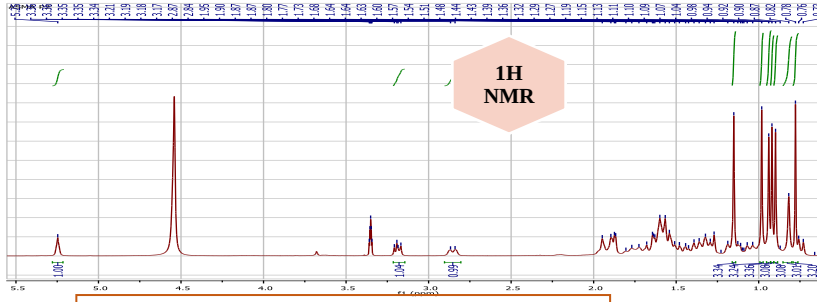


Figure 4: 13C and 1H spectrum of compound P2.

The chemical structure of one compound P2 was determined using 1H NMR and 13C NMR, that was determined to be a 3-hydroxy-olean-12-ene-28-carboxyl (Oleanolic acid).

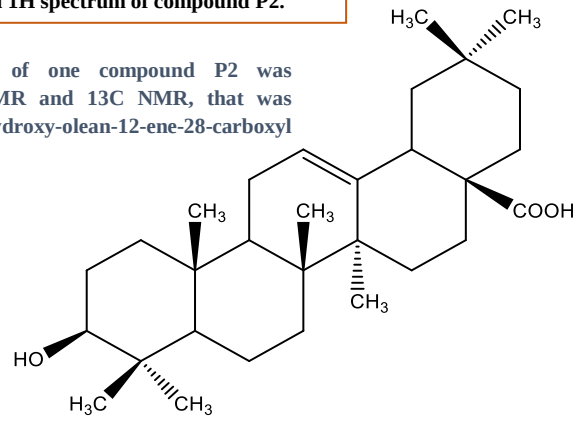


Figure 5: Chemical structure of compound P2; a 3-hydroxy-olean-12-ene-28-carboxyl (Oleanolic acid).

Conclusion

The results obtained indicate that the extracts have a very good antioxidant activity. In two methods tested to evaluate the antioxidant activity. These extracts can be used as good source of antioxidants, which have relevance in the prevention of disease in which free radical are implicate.