International Journal of Advances in Pharmaceutics
ISSN: 2320–4923; DOI: 10.7439/ijap
Volume 4 Issue 3 [2015]
Journal home page: http://ssjournals.com/index.php/ijap

Research Article

Caracterization of the pulp of some *Crataegus azarolus* L.

Abdelkader Mizi* and Djedaia Salah

Laboratory of the Phytochemistry and valorization of olives wastes. University of BadjiMokhtar BP. 12 Annaba 2300 Algeria

***Correspondence Info:**
Abdelkader Mizi
Laboratory of the Phytochemistry and valorization of olives wastes.
University of BadjiMokhtar BP. 12
Annaba 2300 Algeria
Email: mizi_abdelkader@yahoo.fr

Abstract

Some physical, chemical and biochemical properties of an extracted oil of pulp of *Crataeus azarolus* L are presented. Extracted oil was obtained according to two extraction ways and parameters are of fat matter were characterized.

As far as results are concerned, we can classify oil of *Crataegus azarous* L among plant oils type oleo-linoleic with a low content of vitamine E, in the range of 6.6mg/100g.

Keywords:

Oil –extraction, fatty acid, *Crataegus azarolus* L, CPG.

1. Introduction

The organic crataegus mastic of the Algerian Mediterranean sea belongs to the family Anacardiaceae, the tree height is from 1 to 8 m [1]; it grows in meadows-Saharan regions of the country; is a branched tree has strong acrid smell of resin, the leaves are composed of 3 to 6 pairs of leaflets leathery dark green. The very small flowers bezels red anthers are grouped in clusters. The round fruit size of a poris, green at first, then red to maturity.

The therapeutic qualities of these species are known from antiquity or the Ancient Egyptians used the mastic *Cratageus azarolus* L., the oil of this plant has a vital interest in Algerian countryside. It is used in traditional medicine namely the treatment of burns and asthma. The leaves are used to prepare a powder as talc for babies and kohl for eyes. The objective of this work is the determination of chemical parameters of this oil and fatty acid composition in order to rank among other known vegetable oils.

2. Material and methods

2.1 Plant material

The fruits come from a forest of the Wilaya of Telghimit region of Laghouat located 500 KLM south of Algiers before processing the fruit is dried in an oven at 60^0 C 48 hours.

2.2 Preparation of extracts

The essential oil is obtained after 20 hours of extraction with a mixture of CH_3OH /$CHcl_3$ (½) Following the method of Fochl *et al*[2] and with petroleum ether (40-60^0 C) characterization of the fat is made following Wolf [3] using a Soxhlet after removal solvent oil pleasant smell. The physico-chemical parameters are made according to standard conventional methods [4].

2.2.1 Preparation of methyl fatty acid extracts

In a 100 ml flask is dissolved 2 g of oil in 60 ml of ether. Added 5g ambelite A26 resin mixture is covered with aluminum foil and stirred at room temperature for two hours. Is made vacuum filtration followed by washing with 20ml of ether and 30ml of pure methanol. The resin was then dried under a stream of nitrogen and introduced into a crimp vial was added 2 ml of methanol solution of 10% BF3 in the bottle set is carried for 1 hour in an oil bath at 60 C0 the methyl esters

are extracted with three times 30 ml of hexane and then dried with anhydrous sodium sulphate, after filtration its empty volume is reduced to 2 ml by evaporating under reduced pressure at 40^0 C and analyzing one microlite of the solution by GPC[5].

2.2 Analytical GC

GC analysis was carried out using a Perkin-Elmer Autosystem apparatus equipped with two flame ionization detectors (FID), and fused capillary columns (length 30m and diameter 0.25m), DB 1701(chromptic).The oven temperature was programmed from 60 to 220°C at 2°/min and then held isothermal (20min); injector temperature: 250°C (injection mode: spilt); detector temperature: 250°C; carrier gas: helium.

2.3 Identification of the components

The methyl esters are identified as a function of the retention time. The percentage of fatty acid is calculated by the internal normalization method using Methyl palmitoleate as internal standard [6]. The esters are corresponding to acids: palmitic acid, palmitolei acid, oleic acid, linoleic acid and linolenique acid..

2.4 Biochemical composition of mastic oil

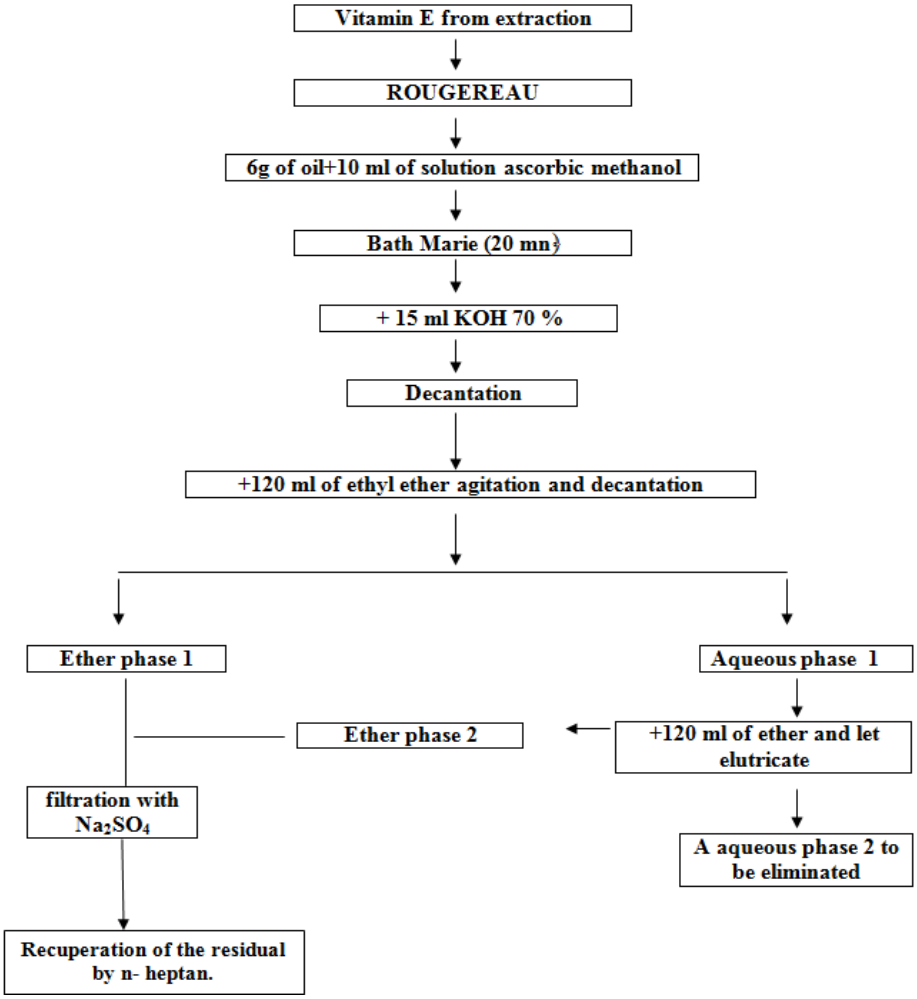
2.4.1 Dosage of vitamin E

A-ROUGEREAU established an experimental procedure to extract Vitamin E see Figure 1 this method is used by A ROUGEREAU based colorimetric [7]. The extract recovered in the m-heptane is concentrated in an oven until 1 ml of ferric chloride. Reading is performed in a spectrophotometer at a wavelength of 510 nm, it is expressed by the law of BEER LAMBERT.

D0 = Ɛ.C.L

Where **D0:** optical density at 510 mm; **C:** concentration of vitamin E; **L:** thickness of the tank; **Ɛ:** constant molar extinction

Figure 1: extraction of Vitamin E (4)



3. Experimental results

Table 01: Characterization of the fruit

Parameters	Results
% water	1,20
% cinders	0,70
Fat content (extracted with the E-P 40-60°)	24,7

Table 2: Characterisation of the minerals(µg /g M.S)

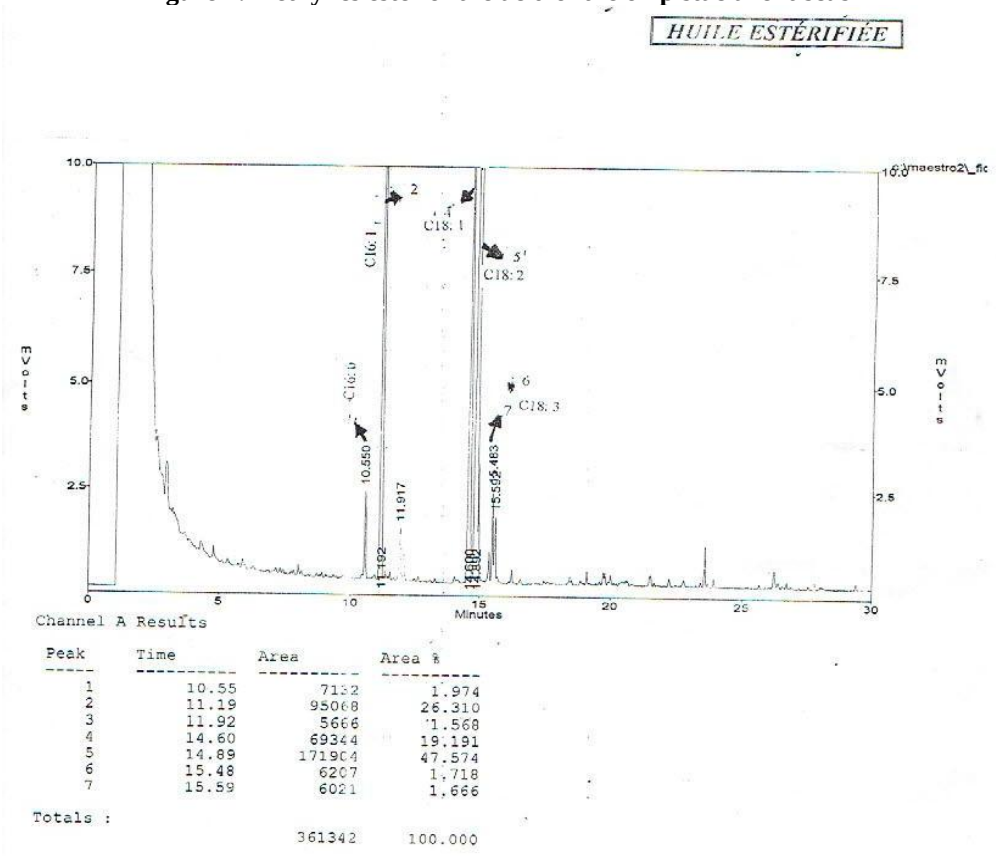
Elements	K*	Ca	Mg	Fe	Zn**	Na*	P	Mn	Cu
Results	0.031	2.170	1.201	168	15.2	90	9.314	29.8	11.2

*By emission of the flame
**By absorption with the furnace of graphite.

Table 03: **Determination of the physico-chemical parameters of grease**

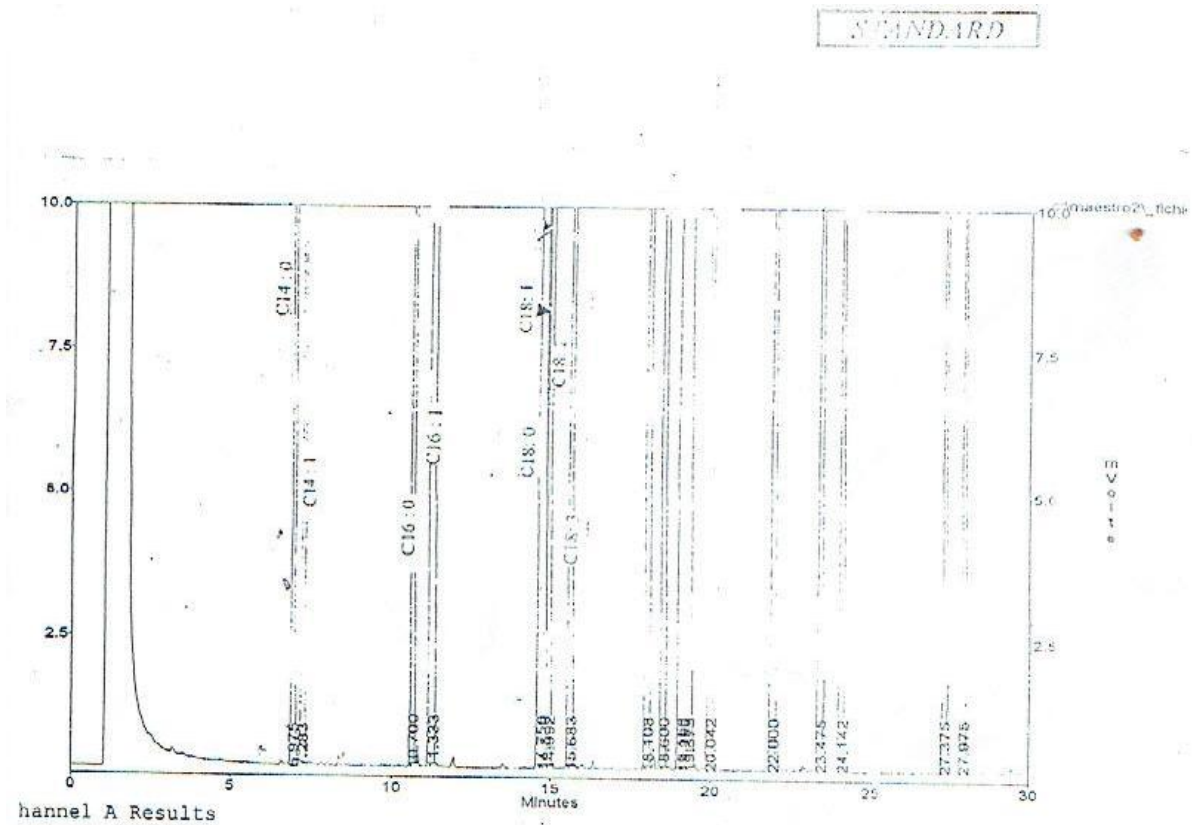
Parameters	Results		
Point fusion (°C)	24		
Note of drop (°C)	22.3		
D40	1.485		
Index saponification (mg KOH/mg) (T60206 standard)	197.4		
Iodine Index (wigs)	86.4		
AcidIndex(mgKOH/g of oil)(AOCS)	2.25		
Colour lovibond	Blue	Red	Yellow
	0.2	1.4	70.2
% insaponifiable (m/m) (Method hexan)	1.20		
Vitamine E (mg/100g)	6.6		

Figure 2: methylics ester of the acid of the oil pistacia lentiscus



1= palmitic acid 2= palmitoleic acid 4= oleic acid 5= linoleic acid 6= linolenic acid

Fig3: Composition of the standard oil



hannel A Results

Peak	Time	Area	Area %
1	6.97	146594	4.913
2	7.28	147770	4.953
3	10.70	154102	5.165
4	11.33	309162	10.362
5	14.75	240975	8.076
6	14.83	91563	3.069
7	14.99	167425	5.611
8	15.68	166548	5.582
9	18.11	164373	5.509
10	18.60	162599	5.450
11	19.16	214229	7.180
12	19.25	116959	3.920
13	19.38	158339	5.307
14	20.04	159185	5.335
15	22.00	140294	4.702
16	23.48	128965	4.322
17	24.14	127831	4.284
18	27.38	94969	3.183
19	27.98	91793	3.077
otals :		2983675	100.000

Table 04: Composition of the oil of *Crataegus azarolus* L:

Composition fatty acids (% in relation of the fatty acids).		
Palmitic acid	**C16:0**	**2.0**
Palmitoleic acid	**C16:1**	**27.1**
Oleic acid	**C18:1**	**19.8**
Linoleic acid	**C18:2**	**49.1**
Linolenic acid	**C18:3**	**1.7**

In the manner advocated by Folch extraction [2] three trials we get an average return of 24.7% fat while for a same number of tests extraction for 20 hours shoxlet by ether petroleum (40-60^0 C) gives an average score of 24.5%, the gap is not too important for these two methods for lipid extraction.

The characteristics and chemical composition of the oil of crataegus shows that our results are a little meadow close to those obtained with the French case [8]; Concerning iodine acid numbers of saponifiable and fatty acid composition of these variations probably due to the types of varieties, extraction and climate.

The determination of the acid number tells us about the state of degradation of the oil, the low value found shows that our sample has not been altered during storage.

The indices of saponification and iodine indicate dominance long C18 chains. The rate of unsaponifiable of 1.80 corresponds to a rich unsaponifiable oil, it is assumed that the variation of vegetable oils is between 0.5- 2% [9].

The found value of vitamin E 6,6mg / 100 appears relatively small contribution to certain vegetable oils they are of 91-97mg order to 100g for the sunflower is 52-87mg to 100mg for the olive [10], CPG permits to this oil that doesn't contain erucic acid undesriable because of its pathological effect on heart muscles. The oil that has been studied is acceptable on the stand point of toxicity and could be consumed without danger; this result in agreement with the utilization of this oil in rural areas of Algeria.

In fact, this oil is remarkable by its high content in linoleic acid, appreciated for numerous industrial applications. Comparison of our results on the fatty acid composition with the French species (Eugène.U 1995) confirms the absence of linoleic and high concentration of the presence of oleic acid there from by contribution to our species that has a high amount of acid linoleic our concentration results of our analyzes can be classified among vegetable oils oleo-linoleic type[11].

4. Conclusion

This botanical plant *crataegus azarolus* L is present in Algerian local market for medicinal purpose mainly, and thus, in regard to the obtained results. It is worth to pursue deeply this study trough qualitative and quantitative analysis of important components of the non-soapable fraction. This will be studied in a near future.

References

[1] Iank L, Ragusa S, Rapisarda A, Franco S, Nicoloçi Vn (1996) in nitro. An Fimicrolial activity of *crataegus azarolus* L extracts: Preleminary report, *Journal of chemotherapy* 8(3): 207-209.

[2] Floch J., Less N. and Sloanesg, *J. Rio. chem*, 497 (1957).

[3] Wolf. J. P. Handbook of analysis of the greasy substance, Azoulay Ed, Paris (1968).

[4] The association of normalisation Françoise (AFNO) series of norms Frnçoise, Greasy corps, oligianous fats and derived products 3ed 1984 85-140.

[5] Karlenskind A, Manuel of greasy corps Vol-1 Technical documentation lavasier Paris Londre – New York 1992 pp 116-126.

[6] Paquot C, Hantfen A (1997) standards methods for analysis of oils fat and derivatives, IU PAC 7th revised and en larged 123 edition, oxford. Blackwell Scientific Publications 123-G.

[7] Rougereau(1981), technique of analysis and quality control.

[8] Eugene(1995), New dictionary of vegetal oils, composition in fatty acid. Edition Lavoisier tech doc, Lavoisier PP 441-443.

[9] Karleskind A (1992) manual of fats vol 1 and 2 Lavoisier Ed Paris ED TEC DOC

[10] Uzzan A(1992) oleaginous Fruits and then oil (oil and oil olive).In handbook greasy substance. Techdoc. Lavoisier fligt, PP.222-224.

[11] UCCIANI E the new dictionary of vegetal oils, composition of greasy acids. Lavoisier Paris, London, New York 1992 PP 11.