Great benefits of *Conocarpus erectus*

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Abstract

Plants still an important source of omega oils that help to healthy for human and animals. Fresh leaves, stem, flower and fruits samples from Conocarpus erectus family Combretaceae has been analyzed using (GLC) Gas and liquid chromatography. The results indicated high levels of Omega oils which related to growth of nerve cells in brain. PH of fresh leaves determined and alkaloids with 8.2 which could help patients of diabetic type II

Key words: Conocarpus, Omega oils, diabetic type II

Introduction

The Conocarpus is composed of 2 species native to North America and Africa. Conocarpus scientific name is *Conocarpus erectus* and the common name: Buttonwood, family: Combretaceae. *Conocarpus erectus* can withstand elevated temperatures, air pollution, poor drainage, trampled soil and salty soil etc . This specie can grow almost in every type of soil as it can withstand air pollution, poor drainage, trampled soil and salt containing soil etc [1]. The species of this genus are native to shorelines in tropical and subtropical region of the earth [2, 3, and 4].

It can form dense, multi-trunked, shrubby thickets or grow as a tree up to 20m in height. Instead, the silver buttonwood has rounded flower heads covered in tiny, whitish florets that are said to

smell intensely of artificial grape. Cute as a button, the maroon-tinged, conical, button-like fruit clusters give the genus both their botanical name: Conocarpus means 'cone-like fruit.[5]

Conocarpus has great medicinal importance like its leaves and fruits have been using traditionally as antipyretic, antidiabetic, antimalarial and for the treatment of conjunctivitis, syphilis, gonorrhea, orchitis, diarrhea, anemia, prickly heat and swellings.[6]

On the Other hand, it is reported that Omega-3 fatty acids are essential for normal growth and development and may play an important role in the prevention and treatment of coronary artery disease, hypertension, diabetes, arthritis, other inflammatory and autoimmune disorders, and cancer [7, 8, and 9]. Many studies on wild plants relative to the omega-3 fatty acids and antioxidant content are being carried out in various parts of the world. As expected, they show enormous variation in the content of both omega-3 fatty acids and antioxidants due to variation in climatic conditions and cultivars [10]. In present work studied the plant of Conocarpus as source of Omega fatty acids after propagating it under the Egyptian climatic conditions.

Material and methods

Plant material:

Green branches of Conocarpus plant were collect from faculty of Agriculture- Alexandria University.

Plant Propagation

The terminal buds with leaves of *Conocarpus erectus* were cultured in water for 2weeks then adaptation in pots with soil and compost 5weeks out door (Figure, 1).

Plant samples preparation:

Samples of leaves and fruits were collected. leaves and fruits washed and divided in fresh leaves dry leaves. Leaves were dried by two methods the first is using sun and the second in oven of 180 degrees for 20 minutes.

Figure 1: Terminal bud and cultivated plants of *Conocarpus erectus*

Fatty acids extraction

Folch method [11] was used to extract lipids which detected by gas liquid.

Estimation of fatty acids

Gas liquid chromatography (GLC), was used to detect and estimate fatty acids in lipid extract according to Radon, 1978 [12] using 10 fatty acids presented in table (1) as standard references.

Table 1: Fatty acids used as standard references in GLC

Symbol	Common name	Systematic name
12:0	Lauric	Decanoic
14,0	Myristic	Tetradecanoic
16:0	Palmitic	Hexadecanoic
18:0	Stearic	Octadecanoic
20:0	Arachidic	Eicosanoic
16:1	Palmitoleic	Hexadecenoic

18:1	Oleic	9, octadecanoic
18:2	Linoleic	9,12, octadecadienoic
18:3	linolenic	9,12,15 -Octadecatrienoic
20:4	Arachidonic	5,8, 11,14, eicosatetraenoic

Apparatus used for GLC was Gc Model Shimadzu Gc-4 CM(PFE), equipped with the following parts and conditions:

- PID detector
- glass column2,5m*3mmID
- Column:5%DEGSon 80/100chromo Q
- DetectorTemp:270C
- H2 flow rate:75ml/min
- Sensitivity:(16*10) 2
- Column Temp:180cISotherm
- N2 Flow rate:20 M.L./min
- Air flow rate:0,5ml/min
- Speed:2,5mm/min

Results and discussion

As shown in table (2) the group fresh leaves and fresh fruits have high content of saturated fatty acids (SFA). The highest SFA was Hexadecanoic acid (palmitic) (16:0) in fresh fruits (23.978 ug) while it was (16.772 ug) in fresh leaves. On the other hand, Tetradecanoic acid (Myristic) (14:0) was the lower acid in fresh fruit (0.904) ug and in leaves (0.740 ug). Generally, fresh leaves and fresh fruits were higher than dry leaves for saturated fatty acids content.

Regarding the unsaturated acids (omega acids):

Results in fresh leaves showed high content of Oleic (18.0) w9 octadecanoic (37.858) ug and low content in fruits (26.691) ug. While in the case of linoleic (18.1) w6 was high in fresh leaves (26.56) and in fruits fresh was (25.760) ug. Linolenic (18.3) w3octadecanoic trienoicw3 was high in fresh leaves (12.65), and also in fresh fruits (9.873) ug.

The content of arachidonic (20.4) octadecanoic tetraenoic w3 was high in fresh leaves (3.106) ug and low in fresh fruits (1.15) ug.

In the group of dry leaves:

Saturated fatty acids were high in dry leaves in Sun, where palmitic was (27.321) ug but in oven dried leaves was (25.866) ug. Unsaturated acid omega oil of dry leaves in sun was high in oleic acid (34.24 ug). On the other hand, linoleic acid w6 was high in dry in sun (21.359) ug. But in the case of dry leaves in oven was (16.166) ug, in linolenic w3 high in dry sun (36.607) ug but in dry in oven (15.273) ug, in arachidonic high in dry in oven. (1.155) ug, while in Sun (0.599) ug.

Table 2: Oil omega in leaves and fruits co carpus erectus

Symbol		Common name	Systematic name	Fresh leaves	Fresh fruits	Oven Dry leaves	Sun Dry leaves	S. D
12:00	Saturated Fatty Acids	Lauric	Decanoic	1.135	1.808	1.450	1.118	±0.3249
14,0		Myristic	Tetradecanoic	O.740	0.904	3.695	3.726	±1.6204
16:00		Palmitic	Hexadecanoic	16.772	23.978	25.866	27.321	±4.6794
18:00		Stearic	Octadecanoic	6.101	4.295	7.452	3.825	±1.6736
20:00		Arachidic	Eicosanoic	3.106	ND	1.155	0.559	±1.3322
16:01	Unsaturated Fatty Acids	Palmitoleic	Hexadecenoic	2.690	5.859	3.387	0.460	±2.2235
18:01		Oleic	9, octadecanoic	36.858	26. 691	24	34.424	±6.6099
18:02		Linoleic	9,12, octadecadienoic	25.56	25.760	16.166	21.359	±4.5122
18:03		linolenic	9,12,15 - Octadecatrienoic	12.655	9.873	15.273	6.209	±5.3905

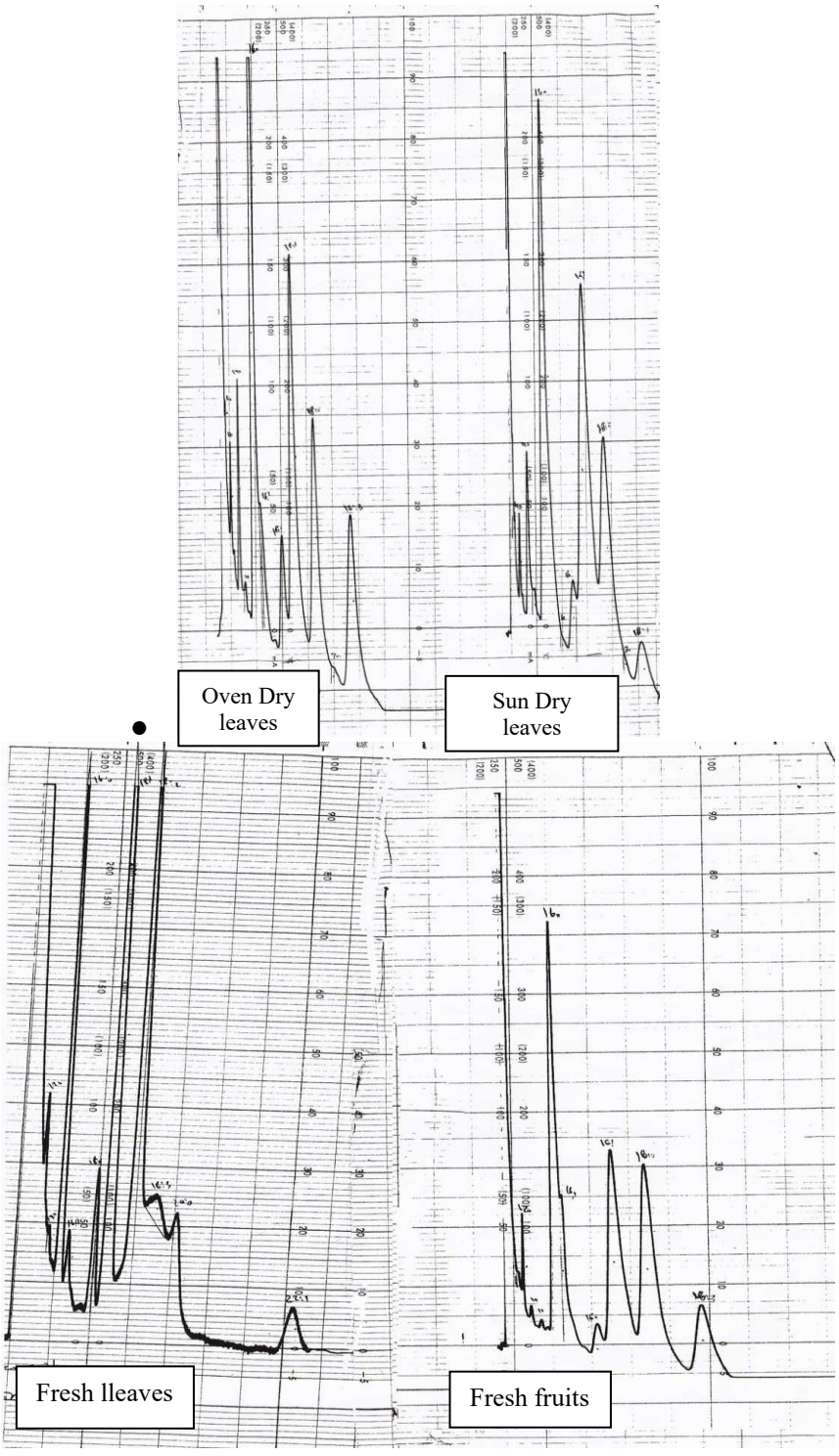

Figure 2: GLC curves for extracted fatty acids of *Conocarpus erectus*

As shown in the results of gas liquid chromatography fatty acids are different for quanties in fresh leaves and fresh fruits, omega oils are high in fresh leaves more than fresh fruits and also higher in oliec (18:1), linoleic (18:2), and linolenic (18:3) and in arachidonic (20:0). In dry leaves in oven

or dry in sun, results shown by gas liquid chromatography indicated that Omega oils in leaves dried in sun are higher than omega oils in leaves dried in oven.

Conclusion

Fresh leaves *Conocarpus erectus* content of Omega fatty acids is more 5 times than dried leaves in sun or oven and extract of leaves is great beneficial in health and medicine (Figure, 2).

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