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The antioxidant activities of different herbs: in vitro study

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Abstract

Aim: The study aims to determine the antioxidant effect of different herbs extracted oil by using spectrophotometer measurement (in vitro study)then compare these effects between them to determine the best one.

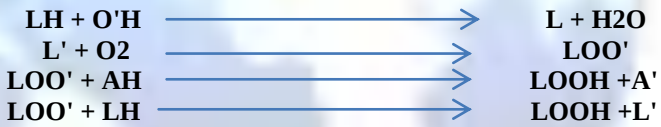
Materials and Method: A total of fourteen herb oil extract available in the market has been used to determine their antioxidant activities by using a spectrophotometric method to evaluate their reducing ability "in vitro study".

Results: green tea oil and parsley oil have shown a higher antioxidant activity compared with other extract oils followed by Anis, Chamomile, Thyme, Mint, Garlic, Peganumhormala, Nut Meg, Flax, Celery, Nut grass oil and ginger oil. The last one showed low antioxidant activity and finally Alcohol which showed no antioxidant activity**.**

Conclusion: Natural herb oil extract has different antioxidant activities with a higher effect of green tea oil and parsley oil followed by other oils extract while same extract has a lower antioxidant effect like Ginger oils Nut grass oil, and Alcohol.

Introduction

Antioxidant materials play as scavenger property to prevent free radical by oxidation of bimolecular and not allow the chain reaction to report .[1,2]. Hence: Scavenging of radicals resulting cell membrane mechanism of scavenging.[3]



Antioxidant are closely related to the prevention of degenerative illness, such as cardiovascular, neurological disease, cancer and oxidative stress dysfunction[4,5]. Found on plants origin not only provide us with important antioxidant vitamins (e.g. Vitamin C, vitamin E or pro-vitamin A) but also a complex mixture of other natural substance with antioxidant capacity. It is to measure all of the antioxidant components in a sample individually, but this is expensive and time consuming. The aim of the present study is to determine possible antioxidantactivity of a number of extracted oil of some herbs (Green tea, Parsley, Anis, Chamomile, Thyme, Mint, Garlic, Peganumharmala, Nut Meg, Flax, Celery, Nut grass, Ginger oil that available in the market which used for treatment of some diseases. Absolute alcohol also was determined.

Materials and Method

All chemicals (Aldrich company) were used without further purification, oil were available in markets which extracted from the leaves and used as a grade. Several methods were known to measure the total antioxidant capacity of biological samples.[6-12]. In the present study, we trail to measure the antioxidant effect of the plants extracted oil. The following method was choice to measure this effect of herb oil which give a good, accurate results.[13] The method depends on the reducing properties of the extracts to reduce FeCl3 (ferric chloride) solution. Briefly appropriate dilution of the extracted oil (500 mg) was mixed with 2.5 ml of 200 mm of sodium phosphate buffer (PH 6.6) and 2.5 ml ferric cyanide solutions. The mixture was incubated at 50˚C for 20 minutes, after which 2.5 ml of trichloro acetic acid was added. The mixture then was centrifuged at 650 rpm for 10 minutes.
The upper layer (5 ml) was mixed with equal volume of deionized water and of 0.1% ferric chloride, the color resulted was measured at 700nm (spectrophotometer) was used for measurement. The higher the absorbance indicate a higher reducing paner.[13,14]

Statistical analysis

The date obtained from this study were subjected to the statistical analysis include descriptive and analytic method for describing the mean of variance were used.
One way analyses of variance and Duncan's test for (intra – group comparison) and for (inter – group) matching with a 5% level of significance.

Results

The descriptive statistics for herbs use with their mean of antioxidant activity have been tabulated in Table -1-. It was shown that higher mean of Antioxidant capacity was recorded for green tea oil and parsley oil followed by the remaining oil as recorded in this table.
Figure -1- show that the highly significant difference ($p<0.05$) between groups by ANOVA analysis.

The Duncan analysis of variance (Table -1-) has been shown that tea and parsley oil have highly significant effects compared with other oils, but there is no significant between these two oils, also anise and chamomile oils shown significant compared with other groups but there is no significant between them. This was followed by thyme, mint and garlic, which shown a significant in related to other groups. But there is no significant between them and this followed by peganumharmola which shown no significant between it and flax, celery, Nut grass, and followed by ginger oil. Menthol and alcohol, which have not any Antioxidant activity.

Discussion

A previous investigate, examine the antioxidant activity of the same herbs in vitro. The study observed the highly antioxidant effect of oils like green tea, parsley, Anis, chamomiles thyme, mint, garlic, and Nut Meg. Tea green oil according to this study produce a higher antioxidant ability, this is due to the fact that green tea structure, Figure (-2-) contain catechine, their gallic ester and glavinwhich provide a strong antioxidant [15] and this is in agreement with other study[16].
Parsley oil according to this study provide a strong antioxidant with high significant difference compared with other oils. But no significant compare with green tea oil, this is because parsley contains vitamin A and Beta carotene, which consider as two important source of antioxidant[17].
The anise oils chamomile and thyme oil according to this study were shown to have antioxidant activity of green tea oil and parsley oil. This resulting agreement with results of previous studies.[12] which observe the anise oil have antioxidant, but disagree with him in thyme when observe that it isstill poor antioxidant. A highest antioxidant activity of thyme agreement with recent research which showed that it have same antioxidant properties.
Nut Meg oil has a high antioxidant activity, this result is an agreement with the earlier study, and this may be due to main active component eugenol and isoeugenol[12].

Conclusion

Natural herbal extracts like tea, parsley, Anis, chamomile, Thyme, garlic oil is proven to have studied the antioxidant activity compared with other herb used in this study "which have lower antioxidant activity" .

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Table1: The antioxidant activity of different herbs oil extract

No.	Herble	Mean ±St.D.	Duncan test
1	Tea oil	0.642 ± 0.0126	A
2	Parsley oil	0.625 ± 0.0332	A
3	Anise oil	0.470 ± 0.0850	B
4	Chamomile oil	0.420 ± 0.0762	B
5	Thyme oil	0.333 ± 0.0275	C
6	Mint oil	0.300 ± 0.0455	C
7	Garlic oil	0.290 ± 0.0497	C
8	Peganumharmala oil	0.228 ± 0.0512	D
9	Nut meg oil	0.213 ± 0.0263	D
10	Flax oil	0.195 ± 0.0420	D
11	Shark liver oil	0.135 ± 0.0451	E
12	Celery oil	0.113 ± 0.0263	E
13	Nut grass oil	0.098 ± 0.0411	E
14	Ginger oil	0.083 ± 0.0881	E
15	Alcohol	0.020 ± 0.0082	E

-l values are shown as mean ± SE
*difference letter means significant difference

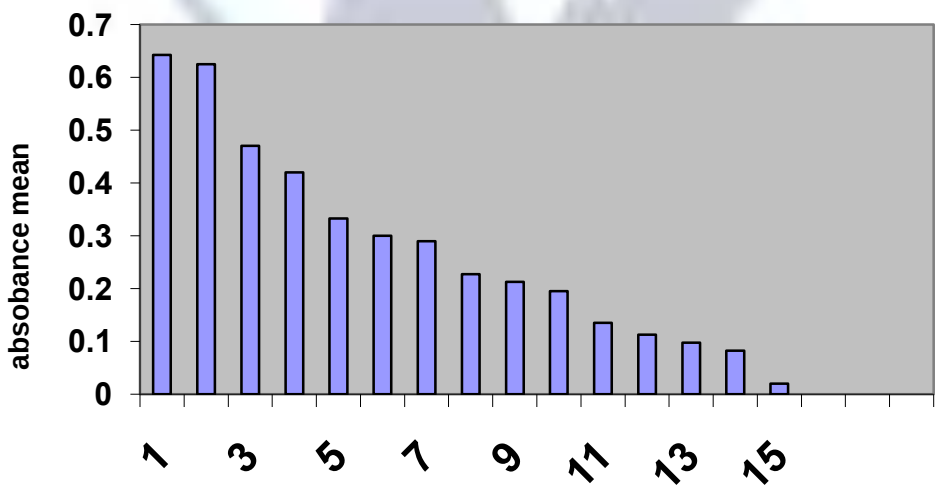

Figure: (1) The absorbance of different extracted oil herbs

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