

The Study Of Eucalyptus Extract Effect On Acne Patients

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ABSTRACT

Phytomedicine is used now in a wide range because the natural origin which is preferred by all population and is used as a treatment or supplements more safely than chemical drugs. In this study the aqueous extract of Eucalyptus which was extracted by soaking method was used to treat Acne, the study included 60 patients (22 male and 38 female) with Acne in a mean age of (18.5) which were diagnosed in two private dermatologic clinics. The extract was prepared by soaking in distilled water for 72 hours and then concentrated by rotary evaporator. The medium of the extract was pH=6 which is accepted for skin. The aqueous crude extract then mixed with aqua rose cream (weight to volume 1:1) as a base to obtain consistent texture and the final mixture was poured in clean dry polyethylene containers and stored in 7-8 c until use. The extract was applied directly on the affected skin. The study showed that the extract has a significant effect against Acne especially in face. The improvement began after three days of usage in most cases and the improvement persists to reach 40% in the first week of use, 70% in the second week and up to 90% in the third week of use (once daily in duration of six hours). No any side effects were observed during the use of extract. The results of Eucalyptus analysis by X-ray spectrophotometer apparatus showed the presence of many essential elements in addition to the presence of volatile oils and polyphenolic compounds which are identified qualitatively.

Keywords: Eucalyptus, Acne, Soaking extraction.

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INTRODUCTION

Acne is a skin problem that happens when skin pores are clogged with oil, dead skin cells and dirt causing whiteheads, blackheads or pimples. Despite Acne appears commonly in teenagers, it also affects people in all ages¹. Acne may affect skin with high amounts of oil glands in face, upper part of chest, and back². The primary cause of acne is the genetics in a percent of (80%)³. Androgens are a part of the cardinal cause of Acne in male and female by increasing sebum production⁴. The presence of bacterium *Cutibacterium acnes* on skin and its excessive growth is a common factor in Acne⁵. Many treatments are available for Acne, involving lifestyle alteration, drugs and medical methods. The decrease of carbohydrates intake can reduce the condition⁶. Many common treatments can be used directly on the affected skin like benzoyl peroxide. Many other treatments which can be taken orally or topically like retinoids and antibiotics⁷. Acne can be classified according to severity into three classes: mild, moderate, and severe, this classification is useful to determine suitable treatment⁸. Mild Acne is the appearance of clogged skin pores limited to the face, moderate Acne is the presence of higher number of papules in the face compared with mild severity, severe Acne occurs when nodules are characteristic facial lesions, and extensive body trunk involvement⁹.

Eucalyptus is evergreen trees except some species that lose their leaves at the end of dry season; the important feature of *Eucalyptus* leaves is the presence of copious oily glands¹⁰. *Eucalyptus* is used in many medical uses to reduce the symptoms of congestion, coughs, and cold, it is also used to prepare cream and ointment for muscle relieving and for joint pain¹¹. The oils produced from *Eucalyptus* are used as ingredients in cosmetics. Many studies confirmed the antibacterial and antifungal activity of *Eucalyptus*¹².

MATERIALS AND METHODS

The practical part includes two main parts, the collection and extraction part and the extract application part. The collection of plant was performed in Al-Ramadi city and the collected plant was classified by botany specialist as *Eucalyptus camaldulensis* species, the leaves were isolated and cleaned immediately to get rid of dirt and dusts, they were dried by oven at 30 c just to remove cleaning water¹³. After complete drying the leaves were mashed by electrical grinder. The extraction was performed in distilled water only, to make the extract safer for skin use, by soaking 100 gm of mash in 1 liter of distilled water for 72 hours at room temperature, the liquid crude extract was filtered firstly by gauze pads and then by filter paper to another 1000 ml clean dry beaker, the crude extract was concentrated by rotary evaporator to remove the water as it possible^{14,15}. A sample of the concentrated crude extract was analyzed by X-ray spectrophotometer to evaluate the presence of mineral oxides. The concentrated crude extract was mixed with aqua rose cream in percentage of (1:1 weight to volume), this means that the concentration of extract in the cream equals 50%, this mixing process is to obtain proper texture of extract to use it easily. The final mixture was packed in 25 g polyethylene containers and stored in 7-8 c until use. The mixture of extract was examined on 60 volunteers with Acne in two private dermatologic clinics, the dose of extract was once daily in duration of six hours applied directly on the affected skin area after the rinse of skin to remove the oily layer to getting fully absorption of cream. Many questions have been asked for the patients and listed in questionnaire.

RESULTS AND DISCUSSION

The treatment by herbs or the phytomedicine is one of the most important ideas that was used previously in oldest history in treatment of diseases, this science include the use of certain compounds present in the plant for medical purposes or supplements. Phytomedicine is

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used now in a wide range because the natural origin which is preferred by all population and is used as a treatment or supplements more safely than chemical drugs. The effect of extract was examined on all volunteers in private clinics of dermatology in the same way and dose for all, the extract showed good results against *Acne* in most volunteers, the improvement was more in face than upper chest and back. From the prognosis we found that the improvement in patients began within three days of usage in most cases and the improvement persists to reach 40% in the first week of use, 70% in the second week and up to 90% in the third

week of use (figure 1). No any side effect was recorded for all patients that used the extract. *Acne* in most females was mild to moderate compared with many severe cases seen in males. The oily skin patients are more prone to affected with *Acne* than others, in addition to many other factors related to *Acne* were recorded in the questionnaire including the menstruation period, in which *Acne* is exacerbated. The nature of diet like sweets, the repeated use of cosmetics and bad emotions exacerbate the *Acne*.



Before

After

Figure 1: Certain patients before and after the use of extract.

The results of X-ray spectrophotometer analysis showed that the leaves of *Eucalyptus* contains many important elements in a total concentration of 6.94% (table 1) which is a high percentage and the most abundant element is calcium oxide (3.32%). The presence of variety of elements in a natural manner accompanying with macromolecules and vitamins have a synergistic effect therefore the crude extract is the preferred to use

No.	Symbol	Element	Concentration
1	CaO	Calcium	3.32%
2	MgO	Magnesium	1.2 %
3	Cl	Chlorine	0.96 %
4	K ₂ O	Potassium	0.61%
5	SiO ₂	Silicon	0.35%
6	P ₂ O ₅	Phosphorus	0.282%
7	SO ₃	Sulfur	0.132%
8	Fe ₂ O ₃	Iron	0.026%
9	SrO	Strontium	0.013%
10	ZnO	Zinc	0.001%

The table above showing the main elementary content in addition to other elements in trace amounts, most of these elements has skin care features. *Eucalyptus* also contains polyphenolic compounds which are a peeling compounds, therefore these phenolic compounds used commonly in many skin treatments.

CONCLUSIONS

From the results obtained during the use of *Eucalyptus* extract on patients with *Acne*, the extract has a good effect to treat *Acne* within three weeks, the follow up of patients showed that no side effect appeared during the use of extract. Life style has a big role in this skin condition, therefore the patient must change the life style like reduce the cosmetics and perfumes. The quantitative analysis results of *Eucalyptus* showed the diversity in the elementary content in addition to many other compounds that have various positive effect on skin like polyphenolic compounds, 1,8-cineole and salicylic acid.

Conflict of interest: Nil **Source of funding:** self funding

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rather than the isolation of individual active compounds. The cardinal constituent in the leaves of *Eucalyptus* is 1,8-cineole which has antimicrobial and anti-inflammatory effects. The presence of salicylic acid in *Eucalyptus* is useful for skin in many ways like it penetrates deeply in the pores, cleanses the clogged pores and breaking down comedones, therefore the chemical composition and the biochemical content of *Eucalyptus* is rich and explain the its effect against *Acne*.

Table 1: The main elements oxide in *Eucalyptus* leaves.

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