

Study of the Effect of Eucalyptus Plant Extract in Preventing the Growth of Pathogenic Bacteria Causing Tonsillitis in Children

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Abstract--- *This study investigates the inhibitory potential of the extract of water and alcohol from the eucalyptus plant in preventing the growth of two types of pathogenic bacteria: Staphylococcus aureus (+ ve), Proteus mirabilis gram (-ve), which causes tonsillitis in children. By taking bacterial isolates from the samples of tonsils of children and bacterial growth in secondary isolates of subcultures and the effect of different concentrations (10, 10-1, 10-2, 10-4) for both water and alcohol extraction from Eucalyptus plant. The filter paper is then immersed in these solutions and left to dry and then placed in dishes containing isolated bacteria and placed in the incubator for two days at a temperature of 37 degrees. Thus, inhibitory levels of both types of extracts were observed in preventing the growth of pathogenic bacteria that cause tonsillitis in children aged 5-10 years.*

Keywords--- *Plant Extraction, Pathogenic Bacteria, Tonsillitis.*

I. INTRODUCTION

Tonsillitis is an infection of the tonsils, that glands in either side of throat back. The tonsils are kind of the immune method, that safeguard and aid the body to infections fight. Tonsillitis is so popular and can happen of any age. It is utmost popular in babies and man adults. Tonsillitis is a word utilized to describe: An acute inflammation and infection of the Acute pharyngitis,, laryngitis, tonsillitis, palatine tonsils or acute exudative tonsillitis mightwhollyreason inFlammarion of the throat and thus the considered collectedbelow the collective word of 'sore throat (1,2,3)'. The diagnosis of "acute tonsillitis" in adults and children may be made on purely clinical signs via a specialist (4). Whereby it concerns generally mix infections (bacterial and viral) (5). In tonsillitis viral, in adding to fever and pain, hoarseness, primarily cough, and rhinorrhea occur, whereas in tonsillitis bacterial, in adding to pain by lymph node swelling, they are largely tonsillar deposits/exudate and fever $>38.3^{\circ}\text{C}$ (6). *P. mirabilis* reasons 90% of wholly *Proteus* infections in humans. It is generallydisseminated in water and soil.*Proteus* species may too happen wound sepsis, infections, pneumonia, generally in hospitalized patients.In cases of acute tonsillitis, the surface of the tonsil might be red bright by visible white areas or streaks of pus (7,8). The utmost communal happen is viral in fiction contains adenovirus, rhinovirus, respiratory syncytial virus coronavirus, influenza(9).The second utmost communal happen is bacterial infection that the predominant is (GABHS), that reasons strep throat. Less communal bacterial reasonscontainaureus Staphylococcus.In several cases of acute and recurrent acute tonsillitis, a microbiological diagnosis is no made. One probable explanation is that the bacteria sampled through the surface swabbing method aren't an accurate reflection of the flora of the tonsillar tissue (10,11). The object of this study was to establish the detailed anaerobic bacteriology of children's tonsils at several pathological stages, in an attempt to

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delineate a pattern of causal relationship. From the time when the ancient time aromatic plants has been utilized of the drugs possessions (1-3). Several active constituents exist in these plants appear antifungal, antiviral, antibacterial and antioxidant affects (4). The history of plants medicinal using of handling of in-factious illness dates back to ancient times, and people wholly of the world need experienced this tradition (5). One of the appropriate choices of the determination is medicinal aromatic plants similar Eucalyptus, that significant basis of chemical materials by potential therapeutic affects. Eucalyptus is a diverse genus of evergreen aromatic flowering trees in Mytracheae family, that comprises over 600 species (1, 7,17).

Antifungal anti-inflammatory, Anticancer, antioxidant, and antiviral affects needed attributed to the leaf extracts of the plant (14). In Some studies, it has been reported that phytochemicals like sterols, alkaloids, glycosides, essential oils, tannins, flavonoids and phenols are affective materials present in Eucalyptus (18, 19). In recent years by regard to the emergence of multidrug-resistant pathogenic bacteria, searching new antibacterial materials of normal bases like plants needs gained extra attention (20).

II. MATERIALS AND METHODS

Preparation of plant extracts

Two types of green calyptuses leaves are collected and dried in the shade at room temperature (30-35 ° C) were prepared naturally for a week with continuous flipping daily to prevent rotting.

1- Preparation of water extract

The water extract was prepared by dissolving (50 g) of the leaves of the plant in 1 liter of distilled distilled water and then leaving the mixture in the shaking incubator device at 35 ° C and for 24 hours and then filtered in the filter paper The leachate is taken. The stopper separates the precipitate from the centrifuge for 10 minutes and at 2500 ° C.

2- Preparation of the alcoholic extract

The same steps were used to prepare the water extract in the preparation of the alcohol extract of the ether liquor at a concentration of 70% instead of using the distilled water.

Bacterial isolates of *Staphylococcus aureus* gram (+ ve), *Proteus mirabilis* gram (-ve) were taken from the Indian General Hospital. It was planted with secondary isolates in the following branches:

MacConkey Agar: That is used with *Proteus mirabilis* bacteria.

Mannitol salt Agar MSA: That is with *Staphylococcus aureus* bacteria.

III. DISCUSSION

A study that was based on bacteriology of the tonsillar surface and core in 30 children undergoing tonsillectomy recommended that antibiotics prescribed 6 months before surgery didnt alter the tonsillar bacteriology at the time of tonsillectomy (21). A relationship among tonsillar size and chronic bacterial tonsillitis is believed to exist. This relationship is based on both the aerobic bacterial load and the absolute number of B and T lymphocytes (22). Chronic tonsillitis in adults requires tonsils to be removed frequently (23).

The study of this study has demonstrated the efficacy of plant extracts when used as inhibitors for the growth of human microorganisms that cause tonsillitis, specifically *Staphylococcus aureus* gram (+ ve), *Proteus mirabilis* gram (-ve). Through the variety of extraction methods of the plant and the use of different fluids for this purpose and stages of sequencing and thus obtained final extracts usable for different concentrations and to ascertain the percentages at which the purpose is done in making this extract performs the function of the necessary antibiotic or vaccine For the treatment of a particular disease caused by these types of bacteria. The bacterial samples were taken for both sexes *Staphylococcus aureus* gram (+ ve), *Proteus mirabilis* gram (-ve). (100, 50, 10, 1) for both the water and alcohol extract of the plant of the calcitus, and to put it in the dishes of the bacterial isolates to test their suitability to act as a growth inhibitor and to know the standard concentration of the extract which acts as an antagonist The bacterial pathogens caused by tonsillitis, through the development of paper tablets (filter paper) saturated with different dilutions of the extract, and then placed in the incubator 37 degree for 24 hours. The results shown in the table above show the areas of inhibition.

Bacterial species	Alcohol extraction (mg/ml)				Water extraction (mg/ml)			
	1	10	50	100	1	10	50	100
<i>Staphylococcus aureus</i> gram (+ ve)	-	+	++	+++	-	-	+++	+++
<i>Proteus mirabilis</i> gram (-ve)	-	+	++	++	+	++	+++	++++

(-)There is no inhibition zone.

(+)Diameter of the inhibition aboutamong (7 - 10 mm).

(++)Diameter of the inhibition aboutamong (10 - 15 mm)

(+++Diameter of the inhibition aboutamong (15-20 mm)

(++++Diameter of the inhibition about of extra than (20 mm)

The above table shows the inhibitory effect of the extract of water and the water of calcite leaves on *Staphylococcus aureus* gram (+ ve) and *Proteus mirabilis* gram (-ve) respectively. The mixing regions were measured and calculated in mm after taking saturated and dehydrated paper tablets (100), 50, 10, 1) for each of the water and alcohol extracts, which were developed in the secondary isolates of each of the bacteria used for the test and to know the ability of the water and alcohol extract to inhibit their growth, and therefore to know the appropriate ratios and concentrations to act as an antibiotic Against bacteria and use as a viable treatment (20 mm or more) with the symbol +, while the area between 15 mm and 20 mm is indicated by the symbol +++. The inhibition area is limited to 10-15 mm, The restricted inhibition zone is between 7 - 10 mm and when it is not an inhibition zone, it is expressed by the symbol -. The results showed that the use of the water extract was more effective as an inhibitor for the growth of bacteria because it gave areas of inhibition with a diameter greater than the extract of alcohol, so we recommend using it and 100% concentration to achieve the desired purpose. The eucalyptus tree is very long, up to 10 meters or more, and its leaves are opposite to its small branches, and gradually become reciprocal. They are the skin of the texture, the shape of the shape, and there are oil glands that smell of camphor, whose flowers are red, A hat falls when its maturity is full and the lion appears from inside. Extracted from the leaves of Eucalyptus tree aromatic oil by steam distillation process, there are two types of these papers.

1- On small plants, they are opposite as they emerge from the branches of the tree. They are shaped at the base of the tree, and the leaf is shorter. 2- In the upper part of the trees, which are more than one year old, are in the form of a swastika, and their stumps are short and constricted. Both types of leaves are used freshly in the steam distillation process to extract the pilot oil located within the oil glands in the mesophyll mesothelioma layer as well as in the small endgenerative ends of the tree. The leaves of this plant contain aromatic oil, tannin, tannins, and resins. The oil content is 3-5%. It is extracted from various eucalyptus species such as *E.smithii*, *E.globulus*, *E.polybractea*, *E.ustraliana*, At the pharmacy. The oil is collected during the first hour of the steam distillation process of the leaves, separated by undesirable volatile compounds, for its foul odor and its effect on the mucous membranes inside the nose. The oil extracted from the leaves of the plant species *E.citriodora* is characterized by Citrone scented eucalyptus, because it contains a high percentage of strontolone Citronellol reaches about 70% and is used in the perfume industry, and scientists have discovered the effectiveness of this anti-bacterial activity oil for its content from the above-mentioned compound. The leaves of some species of Eucalyptus trees in Australia contain high levels of tannin, especially the vegetal species *E.calophylla*, *E.kino*. This helps to capture Astrigent tissues, so they are used in folk medicine to treat diarrhea and dysentery by drinking boiled leaves Or extracting extracted oil. The use of the water extract of the leaves of this plant is used to reduce the inflammation of mucous membranes inside the stomach and intestines. In Australia, the so-called red gum of the two species *Erostrata*, *E. amygdalina*, Murray River in M South Wales, and the dye derived from Type II leaves with a binding effect on tissues such as the famous Kino, but it is slower and lasts longer. Ellagic acid, which is derived from leaf juice, is a tissue-holding agent; it is topically used as a cutter Haemostatic hemorrhage when cut or injured in the skin.The nature of the chemical function of the majority compound (phenol, alcohol, aldehyde, ketone, etc.) plays a predominant role in the effectiveness of their biological activities and thus in the control of infectious diseases (24, 25, 26)..

Prevention

Unfortunately. easily Colds spread of individual to individual from sneezes, coughs, and infected fluids from the throat and nose. You can attempt to eschew the infection pervasion via:

- Keeping your child or yourself far of others whereas unwell.
- Washing hands predominatingly (help children to make the same
- Separation of utensils drinking and eating of the ill individual from others.
- No using the same toothbrushes .
- Should no kiss any person cases tonsillitis

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