PHYTOCHEMICAL SCREENING OF OREGANO (Origanum Vulgare) AGAINST STAPHYLOCOCCUS AUREUS

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CHAPTER I

BACKGROUND OF THE STUDY

Introduction

The researchers found some studies involving Phytochemical screening and its benefits. Since then, it has been decided to conduct this screening to a very common and versatile plant, oregano (Origanum vulgare). Aside from being an herbal medicine, the researchers wanted to find out if it has properties which can be used to inhibit the growth of Staphylococcus aureus. This bacterium is known to be a common cause of skin infection. Because of this, the researchers extracted the leaves of oregano.

After the extraction, the two samples were tested on agar solution with Staphylococcus. The whole process of the research was conducted at Antipolo National High School, Antipolo City.

Many plants can be found in the surroundings. They supply humans with food, medicine, furniture and other materials. Some even have special characteristics that can be utilized in various ways.

This project, Phytochemical Screening of Oregano (Origanum vulgare) Leaves Extract against Staphylococcus aureus aims to utilize the use of oregano extract as an inhibitor of Staphylococcus aureus. To be able to do this, the researchers opted to undergo oregano to a Phytochemical screening to determine its properties and medicinal benefits especially against the bacterium. Volatile oils such as thymol and carvacrol can be found in the extract which is known to inhibit the growth of bacteria such as Pseudomonas aeruginosa and Staphylococcus aureus.
Oregano’s (*Origanum vulgare*) extract have been used since the ancient times as a disinfectant for wounds and to keep foods from different kinds of bacteria.

**Conceptual Framework**

The conceptual model is anchored on the relationship between the independent and dependent variable of the study. The independent variable includes oregano (*Origanum Vulgare*) extract in terms of its inhibition against *Staphylococcus Aureus*. The other phase is the dependent variable which determines the properties that oregano (*Origanum Vulgare*) extract may have that can inhibit *Staphylococcus Aureus* and the rate of inhibition.

The line connecting the IV and DV determines if there is a significant relationship between the independent and dependent variables. The output of the study is phytochemical screening of oregano (*Origanum vulgare*) extract against *Staphylococcus aureus*.
Figure 1
Conceptual Model on the Assessment of the phytochemical screening of oregano (Origanum Vulgare) extract against staphylococcus aureus
Statement of the Problem

The research aimed to determine the phytochemical contents of Oregano (Oreganum vulgare) that can be used against Staphylococcus aureus. Specifically, it seeks to answer the following questions:

1. What is the acceptability of Oregano (Oreganum vulgare) extract in Phytochemical screening against Staphylococcus aureus?
2. In which rate of inhibition of Staphylococcus aureus exposed to 100% Oregano (Oreganum vulgare) extract?

Hypothesis

This research aimed to test the null hypothesis that there is no significant difference between the acceptability of Oregano (Oreganum Vulgare) extract in Phytochemical screening against Staphylococcus Aureus.

Significance of the Study

Medicine. Earth is abundant with plants that do not only provide for their food but also shelter, furniture and clothing. Some plants even have special medicinal value just like Oregano (Oreganum vulgare).

The study will be useful in inhibiting the bacteria, Staphylococcus aureus which can be found in every human skin especially in the nostrils. It is responsible for the formation of pustules or boils in the hair follicles. Being able to finish this study can do a big help to eliminate the bacteria from our skin.
Future Researchers. The result will serve as an input data for their future studies.

Scope and Limitations

The study aims to test the phytochemical components of Oregano (Origanum vulgare) that can be used against the bacteria Staphylococcus aureus.

The study is limited to the Phytochemical screening of Oregano (Origanum vulgare) to determine its contents responsible for inhibiting Staphylococcus aureus.

Furthermore, this was limited in testing the rate on inhibition of oregano extract against Staphylococcus aureus.

Definition of Terms

For better understanding, the following terms were defined:

Oregano. A very abundant plant found in the Philippines. This has been the main ingredient of the experiment where its extract was utilized.

Phytochemical. A naturally-occuring plant substance.

Screening. Test or testing carried out routinely. This involves the inhibition of the staphylococcus aureus using oregano extract.

Staphylococcus aureus. Often give rise to minor superficial diseases, including the formation of pustules or boils in hair follicles; bacteria that was being tested upon with the oregano extract.
CHAPTER II

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents various researches or studies in relation with Oregano (Origanum vulgare) and Staphylococcus aureus that helps support this study.

Related Studies


In this section they state that "one of the advantages essential oils have over antibiotics is that bacteria do not develop resistance to essential oils." Many essential oils exert their antibacterial effect by interfering with the bacteria's ability to breathe. On the other hand, antibiotics interfere with the life cycle, or metabolism, of bacteria, but since bacteria are very crafty creatures, they change their chemistry and genes, which makes the antibiotic less effective the next time it is used. As a result, new generations of antibiotics will need to be developed to stay ahead of these organisms. Additionally, "another advantage to essential oils is that some actually stimulate immune function."

Drs. E. Gildemeister and F.R. Hoffmann are referenced in the book as testing the antimicrobial efficacy of certain essential oils as compared to a medium, phenol. Phenol is an antiseptic substance found in Lysol, Pinesol and Chloraseptic throat spray. The findings were quite a surprise to the investigators. Oil of oregano was the most potent
antimicrobial essential oil tested by the investigators, as it proved to be 21 times stronger than the medium.

Volume 18 of the British Naturopathic Journal included an article entitled "Kill and Cure: The Healing Properties of Wild Oregano Oil." In the article, David Potterton, ND summarized the findings of the world's foremost expert on oil of oregano, Dr. Cass Ingram. According to Dr. Ingram, "oregano is the Rolls Royce of natural antiseptics." It is, for example, far more active against noxious urinary pathogens than the typically relied upon natural compounds such as garlic, goldenseal and echinacea.

The active ingredient, carvacrol, acts directly upon the mucous membranes of the urinary tract and bladder. It offers the unique advantage of destroying both urinary bacteria as well as yeasts, something that standard antibiotics fail to achieve." In accordance to the article, readers should get their hands on a copy of Dr. Ingram's book The Cure is in the Cupboard: How to use Oregano for Better Health.

One of Dr. Ingram's predecessors, renowned scientist H. Martindale, documented that the essential oil of oregano was the most powerful plant-derived antiseptic known. This was back in 1910 when oregano was commonly used to treat illness. Mr. Martindale demonstrated that oregano was 26 times more active as an antiseptic than phenol, a powerful disinfectant used to sterilize hospital equipment.

In the article "A Serenade for Marinade" published July 5, 1999, in the Knoxville News (Health and Science section), Dr. F. Ann Draughon, a University of Tennessee microbiologist, studied the effects of herbs on food safety. Dr. Draughon found that oil of oregano was the most effective at killing all