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A Study on antimicrobial activity in medicine plant hibiscus Rosa in Surguja

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Abstract -To see and analyze the antimicrobial properties found in medicinal plants in Surguja, medicinal plant hibiscus Rosa was used and its antimicrobial properties were investigated in Surguja. For this test, first of all, fresh leaves of Hibiscus Rosa plant were collected, then plant extract was prepared from that leaves, after preparing plant extract, selection of bacteria was done. After selection of bacteria, the growth of those bacteria was done and bacteria culture was prepared, then the bacteria were identified by this straining method, the bacteria were stored and bacteria suspension was prepared. After preparing the bacteria suspension, the antimicrobial properties of the plant Well diffusion method was used to see that the antimicrobial properties found in it were tested and due to this property found in the plant in garden in Sanjay park (Surguja), the plant completely deactivates the effect and growth of gram positive and gram negativebacteria.

Key Words: antimicrobial, plant extract, bacterial suspension

1. INTRODUCTION-

Various plant species that are utilized in herbalist (also known as "horology" or "herbal medicine") are referred to as "medicinal plants. "It involves both the study of and use of plants for therapeutic purposes. Historically, a variety of plants and their byproducts have been utilized in foods (as herbs or spices) as a natural preservative, flavoring ingredient, and medicine to treat some of the most common human maladies. They are primarily responsible for this curative quality through their antibacterial activity. Utilizing natural plant-Derived antimicrobials can significantly reduce antibiotic dependence; reduce the likelihood of antibiotic resistance in food-Borne pathogenic microorganisms, and aid in preventing cross-contamination by food- borne pathogens (Voon et al., 2012). Plants or their extracts can be utilized as natural food colorants in addition to their antioxidant and antimicrobial properties, and in most cases, these colorants are seen to be both safe and effective. There are numerous findings that demonstrate flowers to have powerful anti- inflammatory, anti-microbial, and antioxidant capability (Shyu et al., 2009; Jo et al., 2012; Voon Et al., 2012). Malvaceae's Hibiscus Rosa-sinensis L. is a perennial woody ornamental shrub that blooms profusely and is widely distributed in tropical areas. Previous research has shown H. Rosa-sinensis to have bioactive properties, and it is advised to use it as an herbal alternative to tree at many diseases (Obi et al., 1998).

2. HIBISCUS ROSA- SINENSIS-

Hibiscus Rosa -sinensis Linn [Malvaceae] is a glabrous shrub that is frequently grown as an ornamental plant in the tropics. It comes in a variety of forms with different coloured flowers. The red-flowered type, however, is recommended in medicine (Adhirajan, N., kumar, T. Et al. 2003). Sometimes it is also grown as a hedge plant or along a fence. Although it is native to China and East Asia, it is now widely cultivated and produced in the Philippines and India under the common names "shoe flower" and "red hibiscus." The H. Rosa-sinensis plant's potential as a source of edible flowers and natural food colorants has only recently been recognized on an industrial scale (Deipriya, 2005).

3. MATHOD & MATERIAL-

1. SELECTION OF PLANT-

Fresh leaf of hibiscus (*H. Rosa-sinensis*) and with no apparent physical, insect or microbial damage were collected from the garden of Sanjay park colony, Ambikapur, Surguja. The leaves samples were collected and wrapped in aluminum foils and kept in deep freezer at -20° C. Until we use it for further.

2. PREPARATION OF PLANT EXTRACTS-

The fresh leaf of plant was collected and weight 2 gm. before making its leave aqueous extract. They were surface sterilized, by washing it with ethanol. The sterilized leaf were crushed in pestle mortar to make aqueous extract in 10ml ethanol. The extract is then filtered through what man filter paper and then the solutions were labeled and used for the further tests. Collected plant material (leaf) was washed thoroughly

in running tap water, rinsed through distilled water and shade dried in open air. After drying the leaves crushed and broken by using a pestle mortar into powder then stored in a cool and dry place.

3. SELECTION OF BACTERIA-

For the test of antimicrobial activity for the test of medicinal plant against the selected bacteria, we collect air soil then spread nutrient agar plate and incubate. After incubate the bacterial colony grow in nutrient agar plate. Then for further test the pure culture obtained was stored in refrigerator in nutrient agar plant and used for the study purpose.

4. ANTIMICROBIAL ACTIVITY-

An antimicrobial substance is an agent that kills or inhibits the growth of the microorganisms antimicrobial activity refers to the process of killing or inhibiting the disease causing microbes. Various antimicrobial agents are used for this purpose. They all have different modes of action by which they act to suppress the infection. An antimicrobial is an agent that kills microorganisms or stops their growth. Antimicrobial medicines can be grouped according to the microorganisms they act primarily against. For example, antibiotics are used against bacteria.

5. ANTIMICROBIAL SCREENING-

The well diffusion method was used for screening the extract for antimicrobial activity saturated with aqueous and plant extract such as leaf. Puncher tube was sterilized in an oven at 140 °c for one hour. Then pour NA media in Petri plates then store plate for solicitation. After the media solidify we inoculate test bacteria (using bacterial suspension) are dried to remove surface moisture. Then on NA media we prepare well and take Micropipette. Then take 50 ul plant extract in micro- pipette and add in well. Plates were incubated at 37°c for 20-24 hours after which the zone of inhibition or depressed growth could be easily measured. All the experiments were done in replicates and the activity index was calculated for each of these. (Pattanaik and Subramanyam).

4. RESULTS-

Shows results obtained for the antibacterial activity of aqueous and ethanolic extracts of hibiscus leaf against various Gram-positive and Gram-negative pathogenic bacteria. Plantextracts inhibit the growth of bacteria.

5. CONCLUSION-

It is clear from this study that the medicinal plant Hibiscus-e Rosa has antimicrobial properties, due to which it destroys gram-negative and gram-positive bacteria and stops their growth completely. We can deactivate the activity of many harmful microbes by the use of medicinal plants and can be used against many diseases. And its uses can prove to be very beneficial in the upcoming future, it plays a very important role in Ayurvedic form against growing diseases, apart from this, due to thesequalities, it can be used in many works.

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