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Qualitative and Phytochemical Study

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Abstract: *The Hibiscus rosa-sinensis is a very important traditional plant with the immense therapeutic value. To evaluate the scientific basis for the use of this plant, the phytochemical screening and its antibacterial activity was experimentally carried out. The Plants have been known to be a reservoir of the secondary metabolites which are being exploited as source of bioactive substance for the various pharmacological and research purposes. In the present study, the fresh flower extracts of the hibiscus were prepared using the ethanol, and the distilled water. The extracts were assessed for the presence of the various classes of the phytochemicals by subjecting to the different tests and the total phenolic content of each extract was carried out using the FCR method. The Results revealed that all the extracts of the hibiscus contained alkaloids, flavonoids and the tannins. Saponins and terpenoids were also present in all the flower extracts of the hibiscus.*

Keywords: Hibiscus rosa-sinensis, phytochemical analysis

I. INTRODUCTION

The Plants are a source of the great economic value all over the world. The Nature has bestowed us with a very rich botanical wealth and a large number of the diverse types of the plants grown in the different parts of the country. It is estimated that about 75% of the 120 biologically active plant derived compounds, presently in the use worldwide, have been derived through the follow up researches to verify the authenticity of the data from the folk and the ethno-medicinal uses. So, there is a great scope for the new drug discoveries based on the traditional plant uses. The growing interest in correlating the phytochemical constituents of a medicinal plant with its pharmacological activity has paved way for the plant extracts as a potential and the promising drug against the microbial pathogens as an alternative tool for the disease management. There has also been a revival of the interest in the herbal medicines due to the increased awareness of the limited ability of the synthetic pharmaceutical products to control the majority of the diseases. Moreover, the plant or the herbal extract have advantages of the minimal side effects, easy biodegradability, inexpensive and the extracts that can be easily prepared. The Plants synthesize a wide variety of the chemical compounds, which can be sorted by their chemical class, biosynthetic origin and the functional groups into the primary and the secondary metabolites. In fact, the plants produce a diverse range of the bioactive molecules, making them a rich source of the different types of the medicines. The Natural phytochemicals derived from the plants have gained a significant recognition in the potential management of the several human clinical conditions, including the cancer. The term “Phyto” is the Greek word for the plant and there are many “families” of the phytochemicals that help the human body in a variety of the ways. The Phytochemicals may protect

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the human being from a host of the diseases. There are non-nutritive plant chemicals that have protective or the disease preventive properties. The Plant produces these chemicals to protect itself but recent research demonstrates that many phytochemicals can protect humans against the diseases. The Malvacea family includes the *Hibiscus rosa sinensis*. It growns as the evergreen plant. It is used to cure many types of the diseases. Alkaloids, protein, steroid, and the carbohydrates were found in this phytochemical analysis. It is an ornamental plant that grows and has several antibacterial action. The Flower extract of the *Hibiscus rosa sinensis* is very effective against the human infections. It is also highly need for the drug development. The Hibiscus flower's extracts are used to treat a variety of the ailments. This flower shades ranges from the white to the pink and the red and from orange to the yellow. The Petals are used to promote the hair development, hair loss, and the scalp problems. The Medicinal plants have potential of the myriad benefits. Usually this plants have ability to synthesis the chemical compounds. That chemical compounds are used to defend against the attack from a wide variety of the predators such as the insects, fungi. It is descripted as the asjasum, Chinese hibiscus, jasuba, japa, mondaro, dasanamu, semparuti in many of the states. And also various countries to say as the angharachindi, kaungyan, hong can, rosa de china.

II. MATERIALS AND METHODS

The fresh flower were collected from the flower market in Mumbai Maharashtra, India. These fresh flower was washed under the running up water, and then dried out it under the shadow until it gets completely dried. Then the dried flower was grinded to the fine powder using the electrical grinder and then it was stored for the further reference and also for the tests.

2.1. Preliminary Phytochemical Analysis

The Plants produce the different class of the secondary metabolites such as the alkaloids, tannins, flavonoids, phenols, saponins, glycosides, terpenoids and so on that are responsible for the therapeutic and the defense properties. The aqueous extracts of the selected plant's flower were tested for the saponins, phenols, alkaloids, protein/ amino acids, tannins, flavonoids, carbohydrates/ reducing sugars, phlobatannins, anthraquinone, terpenoids, glycosides and the resin. This phytochemical screening of the extracts was carried out by the standard methods.

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2.2.1. Test for Saponins

The presence of saponins is confirmed by the foam test. 50mg of the Hibiscus Rosa sinensis was dissolved in the 5ml distilled water and it was forcefully agitated until a stable, persistent froth formed. The foam was then blended with the 3 drops of the olive oil and it was violently agitated before being examined for the emulsion. The formation of the emulsion indicates the presence of the saponins.

2.2.2. Test for Alkaloids

For this test, Dragendroff's reagent was used, and wagner's reagent was used to confirm it. In this test, 2ml strong HCL acid was carefully added to the 4ml crude ethanolic extract in a test tube. The mixture was warmed for about 15 minutes, then cooled before being filtered through the whatman No.1 filter paper (125mm diameter). After that, the filterate was put through the dragendroff and the wagner tests. The Wagner's reagent was added to the 1ml of the filterate. The presence of the alkaloids was revealed by the formation of a brownish precipitate. We can also use the 1ml of the 1% HCL was added to the 2 ml of the extract in a test tube and was treated with a few drops of the Mayer's reagent. In this method a creamy white precipitate indicated the presence of the alkaloids.

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2.2.3. Test for Phenol

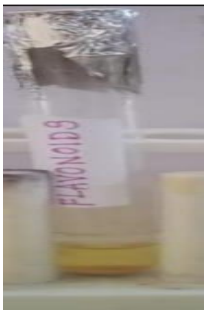
In this test, In the 1ml extract, add distilled water followed by the few drops of the 10% Ferric chloride. The formation of the blue or the black colour indicates the presence of the phenolic groups.

2.2.4. Test for Tannins

In a test tube, 10mg of the hibiscus Rosa sinensis was dissolved in the 3ml of the distilled water, and a few drops of the ferric chloride were added to the solution, which was then examined for the blue or the green colour.The presence of the blue or the green colour indicates the presence of the tannins.

2.2.5. Test for Flavonoids

The presence of the flavonoids is confirmed by the ferric chloride test. In the 3-4ml of the distilled water, 40mg of the Hibiscus Rosa sinensis were dissolved. A 0.5ml solution of the weak ammonia was added to it. Later on, the Concentrated Sulphuric acid was added. The presence of the flavonoids was indicated by a yellow colour. After letting the solution to sit for a while, the yellow colour fades away.



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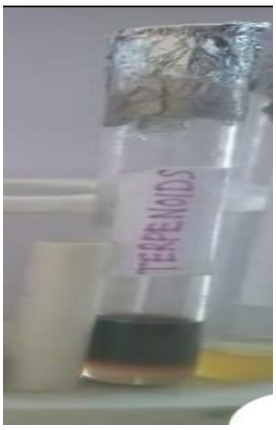
2.2.6. Test for Terpenoids

The presence of the terpenoids is confirmed by the Salkowaski's Test. Here, 25mg of the Hibiscus rosasinensis were dissolved in the 2ml of the chloroform, then 3ml of the concentrated sulphuric acid were added. The presence of the terpenoids was revealed by the appearance of a reddish brown discoloration at the contact.



2.2.7. Test for Carbohydrates

The presence of the carbohydrates is confirmed by the Fehling's test. Here 1ml of the fehling's solution –A is mixed and 1ml of the fehling's solution –B are combined. A small amount of the item dissolved in the water is added to the mixture, agitated thoroughly, and heated in a boiling water bath. The Red brown precipitate is formed indicates the presences of the carbohydrates.

2.2.8. Test for Protein / Amino Acids

Here, In 1ml extract, add 2ml of the distilled water followed by the few drops of the Conc. HNO3. The formation of the yellow colour indicates the presence of the protein / amino acids.

III. RESULTS AND DISCUSSIONS

The phytochemical screening of the flower extracts of the Hibiscus rosa-sinensis showed that the flower are rich in the secondary metabolites and it also conatains certain biochemical compounds

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such as the saponins, phenols, alkaloids, tannins, flavonoids, carbohydrates/reducing sugars and the protiens/ amino acids.

SR NO	Phytochemicals	*Hibiscus rosa-sinensis*
1	Saponin	+ve
2	Alkoloids	+ve
3	Phenol	+ve
4	Tannins	+ve
5	Flavonoids	+ve
6	Terpenoids	-ve
7	Carbohydrates	+ve
8	Protien/Amino acid	+ve

Table 01

IV. CONCLUSION

It is clear from the findings of this study, that the H. rosasinensis flower contain important constituents that confer its phytochemical activity and may be used in treating the pathological conditions. The Biochemical and the pharmacological investigations would also be necessary to establish the exact antibacterial principles for use in the complementary alternative medicine.
In this study it clearly gives the knowledge and indication about the different phytochemicals which are present in it. This phytochemicals are very useful in treating various diseases.

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