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Therapeutic role of Indian flowers in treatment of astrointestinal Diseases caused by *Vibrio species*

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ABSTRACT *- There are several water-borne diseases which are highly pathogenic for humans. Among all, Vibrio genus plays a major role. In this case study of "Therapeutic role of Indian flowers in treatment of Gastrointestinal Diseases causes by Vibrio species". I have chosen seven types of Indian flowers Rosa, Tagetes, Gerbera, Gladiolus, Bellisperennnis, Polianthes tuberose and Jasminummultiflorumand prepare the flowers extract in four types of solvents (Methanol,Ethanol,Acetone and Xylene) with different concentration 50%, 75% and 100% against three Vibrio species (Vibrio cholera, Vibrio alginolyticus, Vibrio parahaemolyticus) by using agar well diffusion method.*

Keywords – *Vibrio cholera, Vibrio alginolyticus, Vibrio parahaemolyticus, Rosa, Tagetes, Gerbera, Gladiolus, Bellisperennnis, Polianthes tuberose, Jasminummultiflorum, Agar well diffusion method.*

I. INTRODUCTION

Infections are very common and responsible for a large number diseases adversely affecting human health. Most of the infectious diseases are caused by bacteria. Infections caused by bacteria can be prevented, managed and treated through anti-bacterial group of compounds known as antibiotics **[1][2]**. Antibiotics can be loosely defined as the variety of substances derived from bacterial sources (microorganisms) that control the growth of or kill other bacteria.. In forties to sixties, the term "antibiotic" was clearly differed from the term "chemotherapeutic drug": Antibiotics were natural drugs produced by several fungi or bacteria **[3].** Gastrointestinal diseases caused by *Vibrio species. Vibrios* are the root of outbreaks and epidemics of cholera, a serious and potentially lethal gastrointestinal infection, which is still a major health problem in parts of the developing world. *V. cholerae* and cholera is usually connected with poor hygiene and polluted water supplies, but it may also be food borne. In the recent years, the antimicrobial and antioxidant actions have received much attention. This is so because of the increasing interest in human health and have been studied *in vitro* and *in vivo* by many researchers **[4].** There is a growing interest in substances exhibiting antimicrobial and antioxidant properties that are supplied to human and animal organisms as food components or as specific pharmaceutics **[5] .** Although, much work has been done on the antimicrobial and antioxidant effects of different plants species. Plants are the primary sources of naturally occurring antioxidants for humans as well as plant extract are very effective against Vibrio species that are causing gastrointestinal diseases **[6].**

II. MATERIALS AND METHOD

1.1 Solvents used-

Four types of solvents Methanol, Ethanol, Acetone and Xylene were used in three different concentration 50%, 75% and 100%, and 1000ppm Ciprofloxacin solution.

2.2 Plant materials-

Seven different varieties of flowers were collected from Lucknow region of Uttar Pradesh in India. These flowers are Rose (*Rosa indica*), Merigold (*Tagetes*), Daisy (*Bellisperennis*),Gladiolus (*Gladiolus*),Tuberose (*P.tuberose*), Jasminum (J.multiflorum)and Gerbera (*Gerbera***)**

2.3 Micro-organisms used –

Vibrios aregram-negative and largely halophilic. *Vibrio* is rod-shaped, and can be straight or curved. *Vibrio* reproduces through asexual division. *Vibrio* species are most commonly found in marine or estuarine environments. However, they can be found in freshwater environments also. *Vibrio bacteria* are usually found in temperate or subtropic waters. *Vibrio bacteria* are often pathogens of humans. Numerous species of *Vibrio*, including *V. cholerae, V. parahaemolyticus*, are known to cause seafood-borne diseases such as septicaemia and wound infections.

2.4 Preparation of extract-

The plant flowers were air dried under shade and made into fine powder by using hand homogenizer and the fine powder was used for extraction procedure and other evaluation. All solvents methanol,ethanol,acetone and xylene was prepared in three different concentration 50% ,75% and 100% by taking 5g of dried flowers powder in a separate container, to this 20mL of solvents was added and kept for 24 h in a shaker. Filtered through eight layers of muslin cloth and extract was collected, the extraction process was repeated twice.

2.5 Agar well diffusion method-

The agar well diffusion assay was used to determine the growth inhibition of *Vibriobacteria* by plant extracts.TSA media was used for agar well diffusion method and The TSA broth were inoculated with different species of *Vibrio bacteria.* Each broth was inoculated with 200µl of different bacterial species mixed well, transferred in to sterile petri dishes and allows to set. Using a sterile cork-borer 6mm diameter, a total of 20µl offlower extracts was poured in to the wells. The zone diameter was then recorded if greater than 6mm.

III. RESULT AND DISCUSSION

The dry flower extracts of Rose (*Rosa indica*), Merigold (*Tagetes*), Daisy (*Bellisperennis*), Gladiolus (*Gladiolus*), and Tuberose (*P.tuberose*), Jasminum (J.multiflorum), Gerbera (*Gerbera)* showed a significant level of antimicrobial activity against *Vibrio cholerae*, *Vibrio parahaemolyticus* and *Vibrio alginolyticus*. The extracts of the flowers were prepared in Methanol, Ethanol, Acetone and Xylene of different concentrations. The study also showed that the effect of the flower extracts on above species vary as the concentration is varied. The concentrations used during our study were 50%, 75% and 100%.

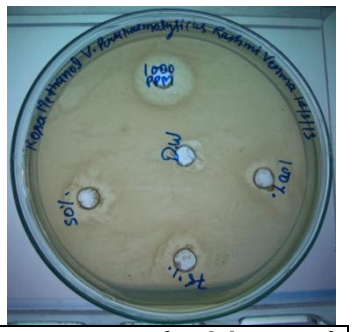


Fig 1: Zone of inhibition of flower extract against *vibrio parahaemolyticus*

Fig 2: Zone of inhibition of flower extract against *vibrio alginolyticus*

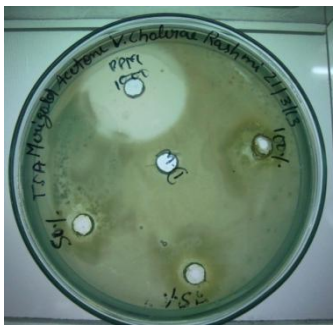
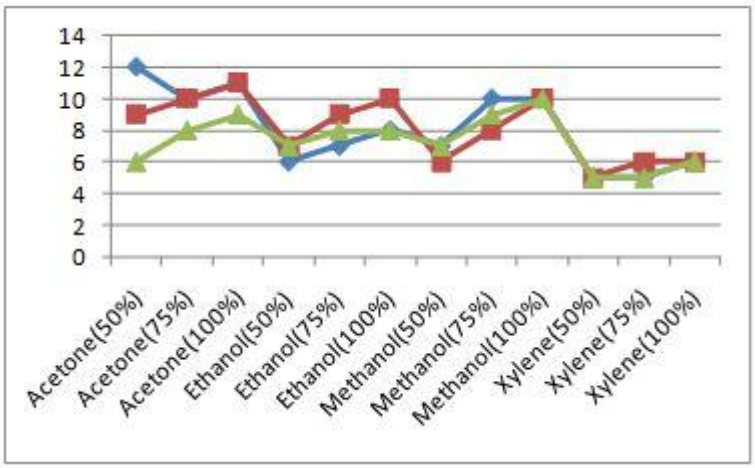


Fig 3: zone of inhibition of flower extract against *vibrio cholerae*

Graphical Representation of Rose flower in various solvents

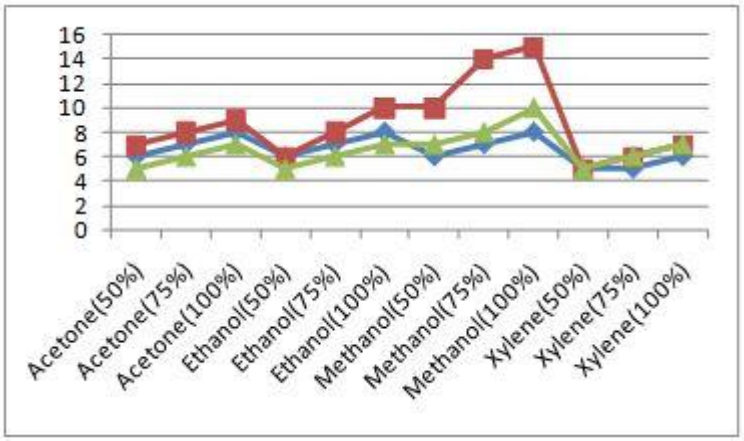


Graph No. 01: Graphical table shows inhibition growth of *Vibrio species* in Rose flower *(Rosa indica)* in various solvents

Indications:

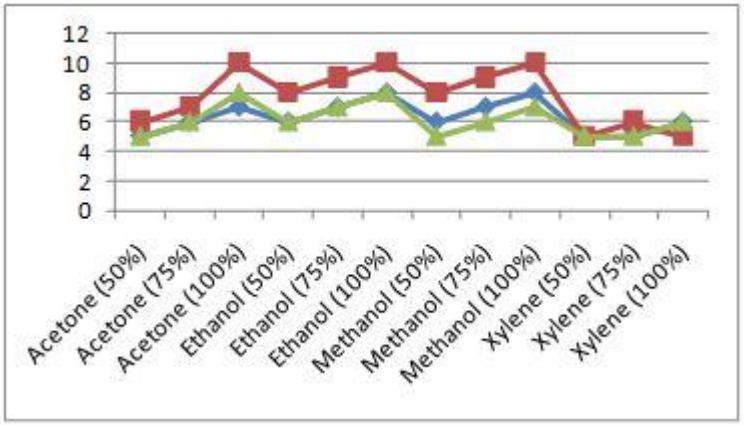
V. alginolyticus

V. cholerae
V. parahaemolyticus
Graphical Representation of Merigold flower in various solvents



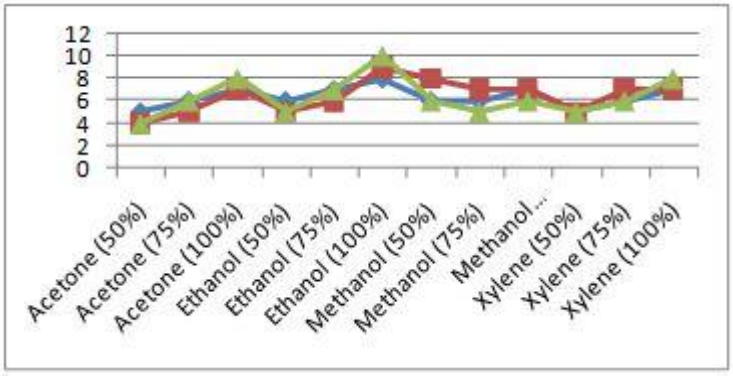
Graph No. 02: Graphical table shows inhibition growth of *Vibrio species* in Merigold flower *(Tagetes)* in various solvents

Indications:
V. alginolyticus
V. cholerae
V. parahaemolyticus
Graphical Representation of Daisy flower in various solvents



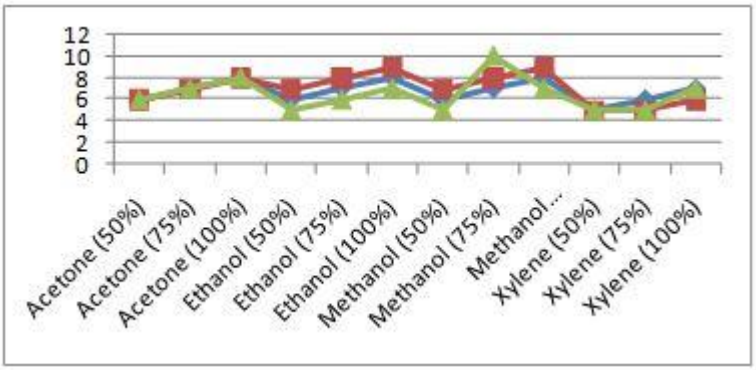
Graph No. 03: Graphical table shows inhibition growth of *Vibrio species* in Daisy *(Bellisperennis)* in various solvents

Indications:
V. alginolyticus
V. cholerae
V. parahaemolyticus
Graphical Representation of Gladiolus flower in various solvents



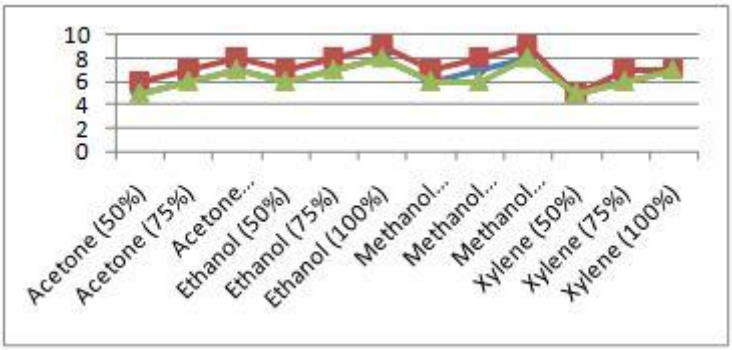
Graph No. 04: Graphical table shows inhibition growth of *Vibrio species* in Gladiolus *(Gladiolus)* in various solvents

Indications:
V. alginolyticus
V. cholerae
V. parahaemolyticus
Graphical Representation of Tuberose flower in various solvents



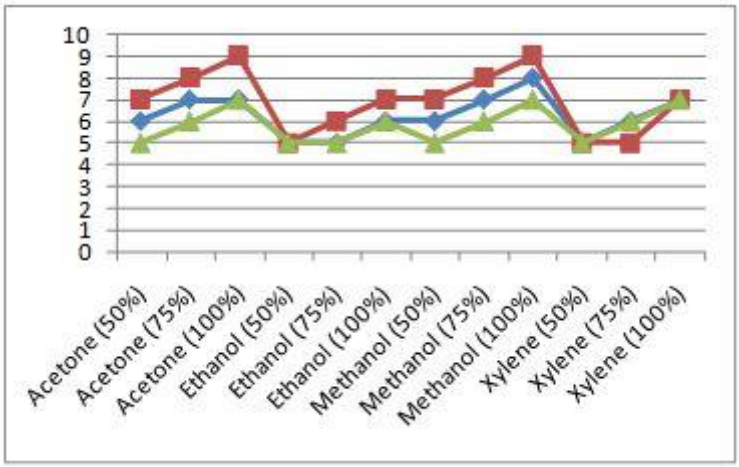
Graph No. 05: Graphical table shows inhibition growth of *Vibrio species* in Tuberose *(P. tuberose)* in various solvents

Indications:
V. alginolyticus
V. cholerae
V. parahaemolyticus
Graphical Representation of Jasminum flower in various solvents



Graph No. 06: Graphical table shows inhibition growth of *Vibrio species* in Jasminum*(J. multiflorum)* in various solvents

Indications:
V. alginolyticus
V. cholerae
V. parahaemolyticus
Graphical Representation of Gerbera flower in various solvents



Graph No. 07: Graphical table shows inhibition growth of *Vibrio species* inGerbera *(Gerbera)* in various solvents

Indications:
V. alginolyticus
V. cholerae
V. parahaemolyticus

IV. CONCLUSION

On the basis of this result ,it was concluded that the extract which are obtain from different flowers Rose (*Rosa indica*), Merigold (*Tagetes*), Daisy (*Bellisperennis*), Gladiolus (*Gladiolus*), and Tuberose (*P.tuberose*), Jasminum (J.multiflorum), Gerbera (*Gerbera)* show inhibitory effect on the *Vibrio species* caused Gastrointestinal diseases.

The flowers extracts was obtained in Acetone, Methanol, Ethanol and Xylene at different concentration of these solvents (50%, 75%&100%). In which the flowers extract in Acetone, Methanol and Ethanol Show the maximum result in 100% con. And minimum result in 50% con. But while Xylene show the minimum or negative effect on all three *Vibrio species*.And 1000ppm solution of Ciprofloxacin drug show maximum result on all *Vibrio species*.

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