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ANTIBACTERIAL ACTIVITY OF MULLATHA AND CHITTAMRUTU

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Abstract:

In the world many medicinal plants are available. Among all these medicinal plants, mullatha and chittamrutu showed antibacterial activity. We collected these plants from Kerala region. In these plants, we isolated DNA for identification of antibacterial activity. We prepared crude extract and subjected to antibacterial. Both crude and DNA showed both antibacterial activity. But Crude extract showed more activity than DNA extract.

Key words: Mullatha, Chittmrutu, Antibacterial, DNA, Crude extract.

Introduction

The usefulness of plant extracts for antimicrobial therapy and/or other diseases have been observed to be promising remedies since ancient time in Kerala medicine, Ayurveda, and Unani medicine. The inclusion of traditionally used medicines including phytomedicine, if they prove safe and effective, into national health care system is suggested by World Health Organization.

Mullatha (Annona muricata):

It is commonly seen in areas of North America, South America and Caribbean and known to as by graviola, paw-paw, guanabana. This is commonly known as soursop commonly it is known as mullatha.

Chittamruth:

Chittamruth is one of the most versatile rejuvenative herbs. Stems and roots are used in the preparation of several decoction medicines and Ayurvedic jams known as rasayana which is very helpful in building up the immune system. It has different properties such as antispasmodic and anti-inflammatory.

Procedure: First we collected both of medicinal plants from kerala. E prepared crude extract and methanol extract. Then we isolated DNA from both plants. At the same time collected bacterial cultures from medical college for testing the activity with these plants.

Plant Selection:

Plants were selected for screening information derived from Kerala forest research institute (KFRI) database of medicinal plants containing the traditional and folk medicine. Selected plants were collected from wild sources or harvested from domesticated plants derived from seeds obtained from wild plants. Plants were cultivated without the use of fertilizers or pesticides using shaded net houses and drip irrigation.

Preparation of Plant extracts:

Plants were cultivated from seeds in the Greenhouse of Medicinal Plants was obtained from medicinal plants Kerala forest research institute. The plant leaves are ground with required amount of ethanol with mortar and pestle. And the grinded paste is transferred into clean microfuge tubes and it was kept in centrifuge for 1 minute with 10000rpm. The supernatant is transferred into clean centrifuge tubes. And then this crude extract is treated to further testing procedures.

Plant extracts (Ethanol Extraction)

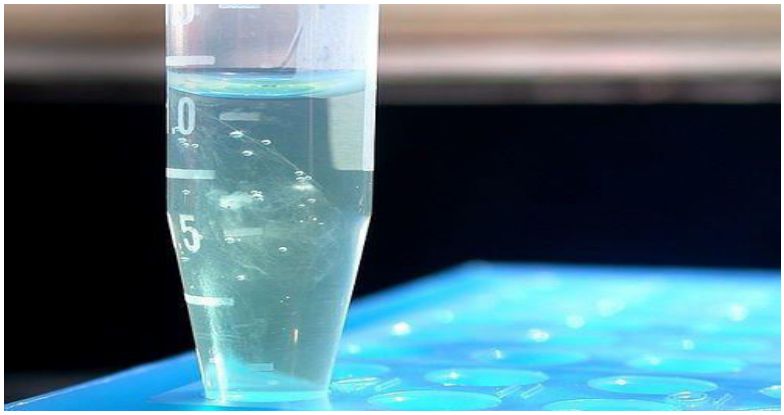
Freshly harvested plants were air-dried at room temperature and extracted with ethanol (50%v/v, 10 v per gram weight) by vigorous stirring in a covered beaker for 24 h at room temperature after which the process was repeated. The supernatant of both extracts was filtered and ethanol evaporated in a chemical hood for 4 days with the evaporated extract frozen at −70∘C followed by lyophilization till dryness.

The dried extract was kept at 4∘C. Stock solutions of the plant extracts (200mg/mL) were prepared by weighing the powder and dissolving it in 10%DMSO/PBS. The solution was divided to aliquots and kept at −20∘C

- Collection of bacterial cultures.
- We collected bacterial Culture like Salmonella typhinurium, Pseudomonas epidermis, Escherichia coli, from. Medical college ,Chennai

  Isolation of DNA from both plants:
- We isolated DNA from both plants using standard method.

Isolated DNA of Mullatha



Isolation of DNA Chittamrutu

Isolated DNA

PREPARATRION OF NUTRIENT MEDIUM AND MIXED WITH PLANT AND DNA EXTRACT:

Nutrient agar and Mueller-Hinton agar were used. Crude extract were prepared prior incorporation into the liquid medium. The DNA is isolated from the selected plants by phenol-chloroform. Pour plate and streak plate method is used to prepare agar plates. Obtain an agar plate and streak it with the appropriate bacterial culture using the quadrant streak plate method. This will result in the isolation of individual colonies .

Antibacterial testing with plant crude extracts and DNA samples

Each plant extract and the isolated DNA was inserted simultaneously in holes made with different concentrations of 40, 60, 80,100 micro litters in new plates. The plates were incubated at 37 °C for 24 h. After this period, it was possible to observe inhibition zone Overall cultured bacteria with holes equal to or greater than 7 mm.

Results

The plant crude extracts and the isolated plant DNA were subjected to antibacterial and the result was got as the plant crude extract showed more antibacterial activity

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Discussion

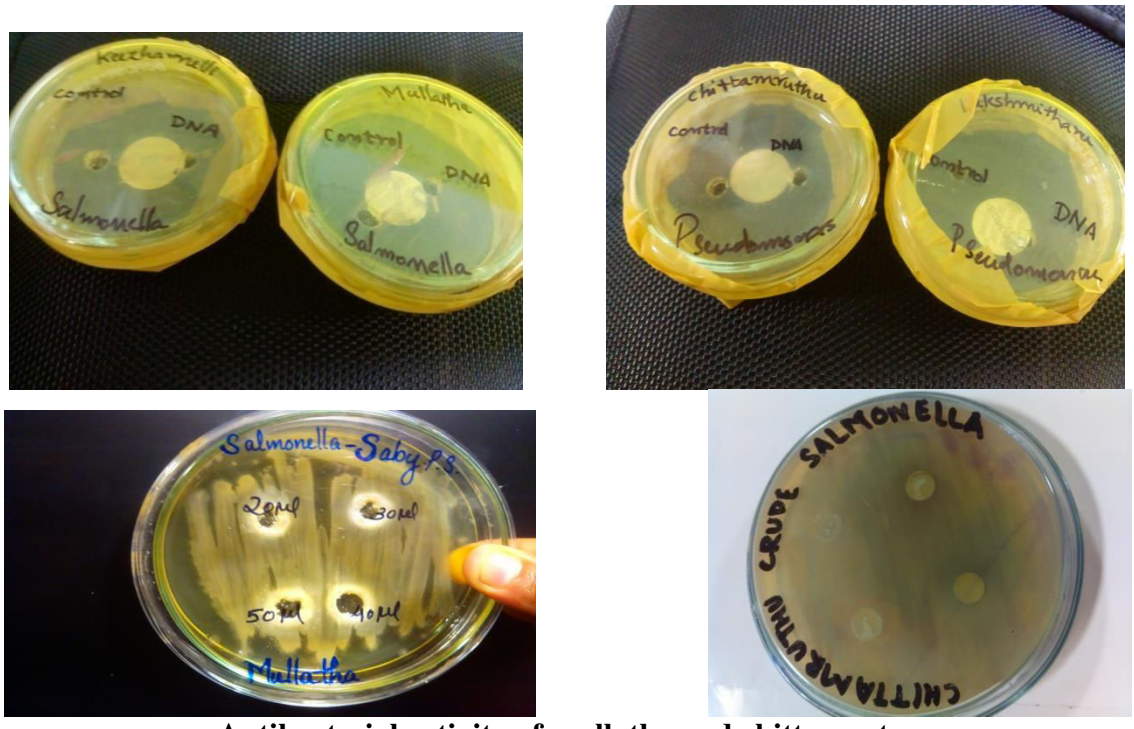
Plant extracts native to Kerala MULLATHA (Annona muricata) AND CHITTAMRUTH (Tinospora cordifolia) used for identification of antibacterial activity.

Medicinal plants have been traditionally used in folk medicine for centuries as natural healing remedies with significant proven therapeutic effects in many areas including prevention of cardiovascular diseases and anti-inflammatory, antimicrobial activity. We investigated that both plants showed antibacterial activity against Salmonella typhinurium , Pseudomonas epidermis, Escherichia coli.

Results

The plant crude extracts and the isolated plant DNA were subjected to antibacterial and the result was got as the plant crude extract showed more antibacterial activity. So both plants showed antibacterial activity against Salmonella typhinurium, Pseudomonas epidermis, Escherichia coli. In both plants isolation of DNA showed more antibacterial activity.

Antibacterial Activity



Antibacterial activity of mullatha and chittamrutu.

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