



# ISOLATION OF ACTINOMYCETES FROM MARINE SOIL COLLECTED FROM NIZAMPATNAM PORT AREA



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## ABSTRACT

ACTINOMYCETES are micro organisms with high medicinal activities. In many places research work going on in this organism. So many Microbiologists isolated new and existed species from different environment soil. In order to identification and isolation of Actinomycetes we are selected marine soil from Nazam patnam Port, Guntur Distric, Andrapradesh, India.

**KEYWORDS:** ACTINOMYCETES, MARINE SOIL, NIZAMPATNAM, ISP2 MEDIA, ISOLATION.

## INTRODUCTION

Nizampatnam, also known as Petapolly (Peddapalli), is a seaport town in Andhra Pradesh state of southern India. Nizampatnam is located in Guntur District, of which it is a mandal, in the delta of the Krishna River, which empties into the Bay of Bengal. The Dutch occupied the city as a trading post from 1606 to 1668. A medium-sized modern port complex is planned for Nizampatnam, which will include terminals for bulk cargo, intermodal containers, and liquefied natural gas. A multi-product special economic zone, including a urea manufacturing facility and an electrical power station, may be built in conjunction with the port complex. There are 15 villages in this mandal, which was formed on 14 January 1987. The social reformer and freedom fighter *Duggirala Gopala Krishnaiah* comes from Penuganchiprolu village of Krishna District.



PICTURE.1 Nizampatnam Map



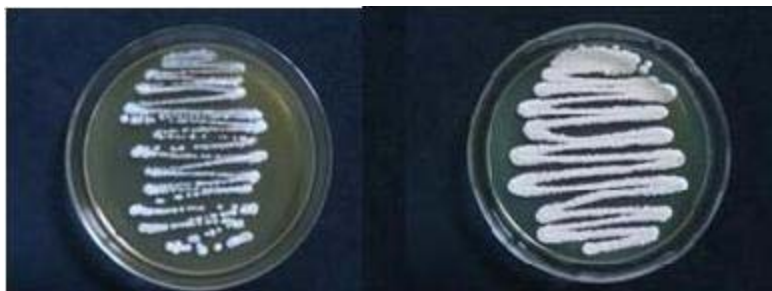
PICTURE.2 Nizampatnam Port.

Actinobacteria are a group of Gram-positive bacteria with high guanine and cytosine content. They can be terrestrial or aquatic. Actinobacteria is one of the dominant phyla of the bacteria. Analysis of glutamine synthetase sequence has been suggested for phylogenetic analysis of Actinobacteria. Actinomycetales is an order of Actinobacteria. They are very diverse and contain a variety of subdivisions as well as yet-unclassified isolates. This is mainly because some genera are very difficult to classify because of a highly niche-dependent phenotype. For example *Nocardia* contains several phenotypes that were first believed to be distinct species before it was proven that their differences are entirely dependent on their growth conditions. Actinomycetales are Gram-positive, however several species have complex cell wall structures that make the gram staining unsuitable. Actinomycetes are best known for their ability to produce antibiotics and are gram positive bacteria which comprise a group of branching unicellular microorganisms. They produce branching mycelium which may be of two kinds *viz.*, substrate mycelium and aerial mycelium. Among actinomycetes, the streptomycetes are the dominant. The non - streptomycetes are called rare actinomycetes.

## MATERIALS AND METHODS

Isolation of Actinomycetes from Marine soil Soil sample was collected from Nizampatnam port area. Remaining chemicals are purchased from N.S.P Chemicals

For actinomycetes, the samples can be collected by inserting a polyvinyl corer (15 cm dia.) (previously sterilized with alcohol) into the soil. The corer is sterilized with alcohol before sampling at each station. The central portion of the top 2 cm soil sample can be taken out with the help of a sterile spatula. This sample can be transferred to a sterile polythene bag and transported immediately to the laboratory. The soil samples thus collected are air-dried aseptically. After a week, the soil samples are to be incubated at 55°C for 5 min. Then, 10-fold serial dilutions of the sediment samples should be prepared, using filtered and sterilized 50% seawater. One ml of the serially diluted samples should be plated in the Kuster's Agar in triplicate petriplates. To minimize fungal contamination, all agar plates should be supplemented with 50 µg/ml of Flucanazole. The actinomycete colonies that appear on the petriplates can be counted from 5th day onwards, upto 28th day. All the colonies that are growing on the petriplates can be separately streaked in petriplates, subcultured, ensured for their axenicity and maintained in slants. At 10<sup>-3</sup> Dilution we got Actinomycetales, and we subcultured for pure forms.



PICTURE.2 Actinomycetes

## RESULTS AND DISCUSSION

In this experiment we got good result. Because of the micro organisms obtained very purely as 10<sup>-2</sup> dilution. Flucanazole inhibited fungal growth. We have to identify the activity of medicinal activities and we have to identify the DNA sequencing for know the species novelty. From this work we are planning to collect oil samples from all Andhra Pradesh coastal.

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