

**Isolate microorganisms producing antibiotics from soil :**

Soil is one of the important sources of microorganisms used in the laboratory of life to impose production of various types of enzymes, antibiotics and other growth factors such as vitamins, amino acids and others.

Featuring microbiology in natural environments almost the existence of many of the interrelationships among them, these relationships may be useful or harmful.

Examples of useful relations for these organisms are commensalism where there are two types of organisms exploit one from the other for the purpose of obtaining the necessary growth substances has one the parties utilized and the other does not hurt, either harmful relations, it is the competition between the two to obtain the necessary growth substances may stop one types second growth produces toxic materials and these materials are antibiotics where antagonism is defined as : the production of toxic substances that have the ability to stop the growth of microorganisms by other microorganisms, leading to the inability of these organisms on living in the nearby region of them.

Where many of the microorganisms in the soil produces retardant materials for the growth of many other microorganisms.

Of microbiology producing antibiotics are bacteria and fungi and Actinomycetes. Where is Actinomycetes of the most important soil organisms that create antibiotics .

Which produces streptomycin types belonging to the genus streptomyces, which inhibits a wide range of positive and negative bacteria Gram stain .

And also cycloheximide, which inhibits the eukaryote organisms, which is used as a disincentive to the growth of fungi at isolating the bacteria count .

Among the most important genus Actinomycetes producing antibiotics :

Streptomyces , Actinomycetes , Nocaradia , Micromonospora

Among the most important genus of bacteria producing antibiotics :

*Bacillus* , *Pseudomonas* , that have the ability to produce pyocyanin and others.

The type of most important genus fungi producing antibiotics :

*Aspergillus* , *Fusarium* , *Pencillium* , *Trichoderma*

**Crowded plate technique :**

This method is used for the purpose of isolating the bacteria that have the ability to produce antibiotics, as well as to isolate the bacteria producing some growth factors and this method are as follows:

- 1- works soil suspension by adding (1) g of soil to test tube container to (9) ml of sterile distilled water.
- 2- Spread selected dilutions on agar surface (solid) then incubate at 37C for 24hr .
- 3- After incubation period we select the plate that growth present on it .
- 4- Select 5 well isolated colonies from plate and then suspend in 1 ml D.W in 5 tubes.
- 5- Cultivate isolated pathogenic bacteria on nutrient agar and then make pores on it by saqib corky.
- 6- Put 0.1 ml from suspend in each pores.
- 7- Incubate the plate at 37 C for 24 hr .
- 8- After incubation we observe clear zone around the pores as indicate to producing antibiotics.