Poster

Isolation and characterization of microorganisms capable of degrading drugs or resist to antibiotics from different natural samples

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Keywords: E.coli, antibiotic, drug, resistance

ABSTRACT

Motivation:

There are commonly used drugs such as ibuprofen (IBU) or naproxen (NPX) discharged into the environment through sludge or wastewater effluent, and therefore are becoming emerging contaminants. Our goal is to isolate microorganisms capable of degrading drugs or that are resistant to antibiotics for hospital use as norfloxacin (NFX). The characterization of these microorganisms will give us information to degrade these drugs prior to discharge to the environment and to combat the emergence of antibiotic-resistant pathogens.

Methods:

Searching microorganisms is carried out by conjugation transferring one metagenoteca obtained from a compost heap to a receptor, and those who are capable of using the drug as sole carbon source or resist to a given antibiotic are selected.

In addition, drug-degrading microorganisms were also sought in a sample of vegetable water.

Drugs we used like carbon sources are Ibuprofen (IBU), naproxen (NPX) Clofibric acid (CLF), diclofenac (DFC), carbamazepine (CBZ), ethinyl estradiol (EE2) and propranolol (PRO)

Antibiotics we used are norfloxacin (NFX), ofloxacin (OFX), colistin (COL) and ceftriaxone (CFX).

Results:

In search of microorganisms from the sample of vegetable water any microorganism of interest it is not obtained.

In the search for microorganisms from the conjugation, we obtained a degrading microorganism NPX. This microorganism is capable of growing on a minimal medium (MM) using NPX as sole carbon source. We have also obtained from the conjugation CFX resistant transconjugant. This microorganism is capable of growing in a medium with a given concentration of CFX

Conclusions:

1) If NPX degrading microorganism is valid, it can be used to degrade contaminants with a structure similar to NPX before pouring the environment.

2) Find antibiotic-resistant microorganisms is of great interest because acquired resistance is increasingly common. If we find a microorganism having resistance to an antibiotic and study their metabolic pathways, we can modify the structure of the antibiotic to kill the acquired resistance.

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