Effects of Penicillin on *Natto* Bacteria

Introduction

Rare blue mold has an antibacterial substance called Penicillin.
They are effective against Gram-positive bacteria.
Does blue mold on familiar food also have Penicillin?

I used bacteria of *natto* to see the effects.
First, I have to know whether penicillin affects the bacteria of *natto*, or not?

Other Gram-positive bacteria are so dangerous for the human body.

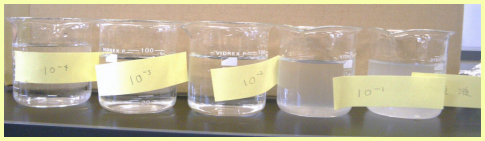
Experiment

I put 3 kinds of antibacterial substances.
①Injectable benzylpenicillin potassium (stronger than the previous one)
②Levofloxacin (a tablet type)
③semisynthetic penicillin : Sawacillin (a capsule type)

1.Mix 2 tablets or capsules of Levofloxacin and Sawacillin with 5ml water. Also mix Injectable Penicillin with 5ml water.
2.Smear *natto* solution over culture medium.
3.Make 4 holes on the medium with a straw.
4.Put solution of chemicals into the holes with an injector.

《Collecting *natto* bacteria》

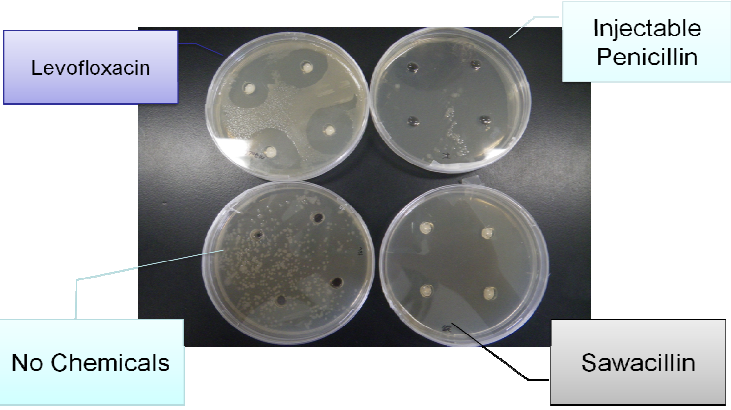
①Shaking *natto* in the water.
②Assorting according to different concentrations.



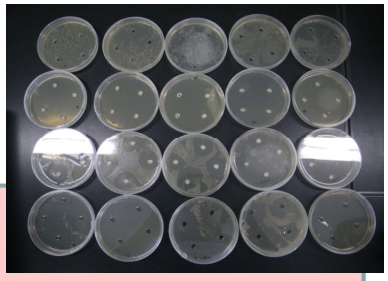
③Putting these solutions on the agar gel, culture medium.

The best concentration of *natto* solution is 10^{-5} to grow and see bacteria.
So I decided to use a concentration of 10^{-5}.

Result



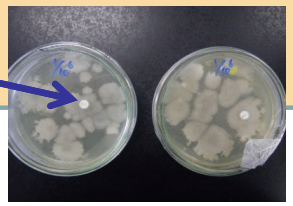
All the petri dishes with chemicals could be seen with inhibition rings.



≪Testing antibacterial substance≫

①Putting Penicillin discs on grown bacteria.
②On the next day, observe them.

A disc



I tested only discs of benzylpenicillin sodium.
The Penicillin discs failed in all the petri dishes.

・Is *natto* too strong to be killed by Penicillin?
・Does *natto* bacteria have antibody protection against Penicillin?
・Is it lack of Penicillin?

From this result,

natto bacteriacan be killedby penicillin.

Next, I will have to extract penicillin from the blue mold.
Test it to know if blue mold on familiar foods have penicillin which can kill bacteria.
I'm going to do this research in the future.