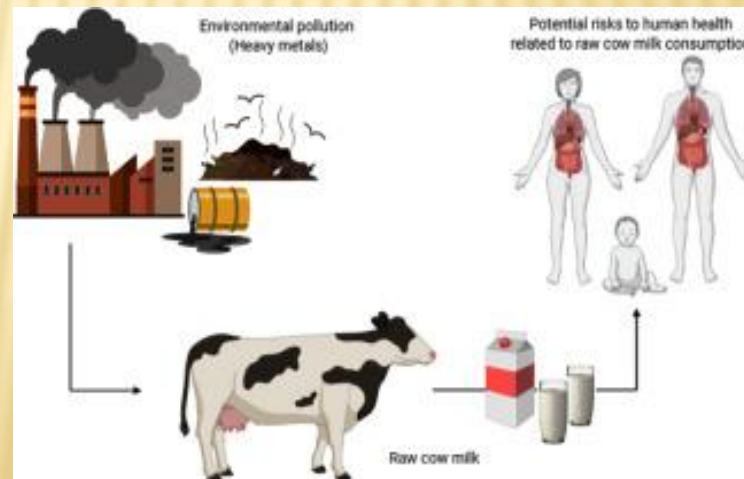


DETECTION OF ANTIBIOTIC RESIDUES IN MILK



DEFINITION OF ANTIBIOTICS

- + Antibiotic refers to the substances produced by microorganisms that act against other microorganisms.
- + They are naturally occurring metabolites derived from fungi or bacteria.
- + They are able to kill microorganisms or inhibit their growth.



ANTIBIOTICS IN MILK

- * Antibiotics are routinely fed to animals such as cattle, pigs, poultry animals .
- * Antibiotic treatment of an animal includes treatment when
 - 1- Ill(therapeutic).
 - 2- Treatment of a herd of animals when at least one is diagnosed as ill (metaphylaxis) .
 - 3- Preventative treatment (prophylaxis).

Their Antibiotics residues in food of animal origin such as milk, eggs or meat represent a potential health risk to consumer.

COMMONLY USED ANTIBIOTICS

Some of the commonly used antibiotics are

- ✘ **Bacitracin:** It belongs to the group polypeptide antibiotics and has a mixture of different polypeptides
- ✘ **Chinolones:** The quinolones or chinolones are a family of broad spectrum antibiotic drugs. Fluoro quinolones are broad spectrum antibiotics against lot of bacterial species used specially for cattle, pigs and chicken.

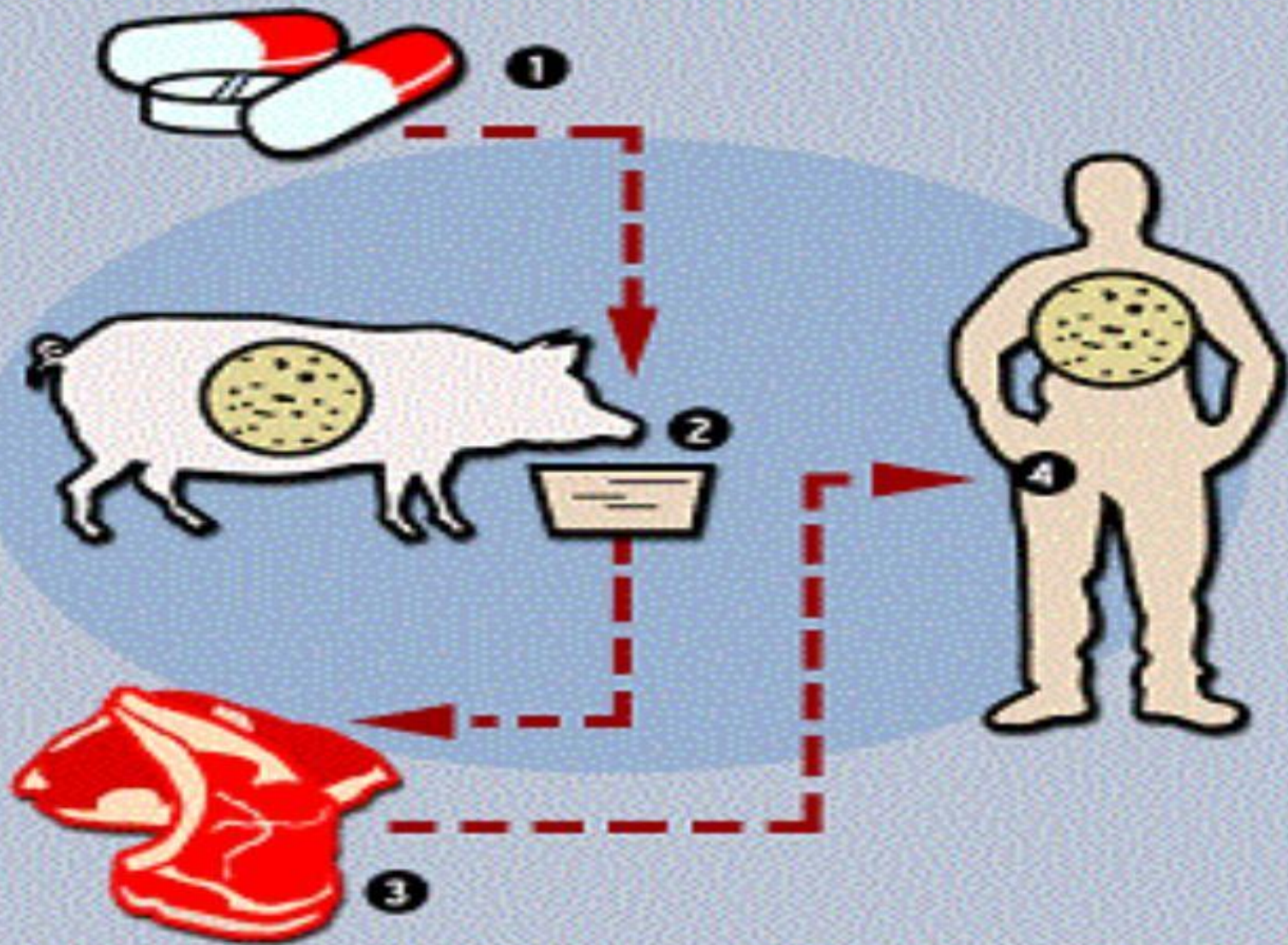
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- × **Chloramphenicol** : It is a broad spectrum antibiotic frequently employed in animal production for its excellent antibacterial.
 - × **Nitro Streptomycin:** In veterinary medicine streptomycin one of the mostly used antibiotics for the treatment of mastitis.

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- × **Beta lactams (penicillin):** They are classified by their chemical structure in several sub-groups, whereas the most important one are penicillin's and cephalosporin.
 - × **Tetracycline:** Aureomycin was the first antibiotic substance of the group of tetracycline.

- ✘ The presence of drug or antibiotic residues in milk due to treat infected dairy cattle is illegal.
- ✘ Antibiotic residue in milk may lead to:
 1. Inhibition of dairy cultures used in the production of cheese and yoghurt .
 2. Severe allergic reactions in sensitive consumers .
 3. Development of bacteria resistance to antibiotics in human intestine .

The frequent use of antibiotic in clinical practice causes the occurrence of antibiotic residues in various food products of animal origin.

Presence of drugs or antibiotic residues in food above the maximum acceptable levels has been recognized world wide by various Public Authorities.



AIM: TO DETECT OF ANTIBIOTIC RESIDUES IN RAW MILK

DETECTION OF ANTIBIOTIC RESIDUES IN FOOD

6 method for detection of antibiotic Residue in food include

1. Microbial Growth Inhibition
 2. Microbial Receptor
 3. Enzymatic Coulometry
 4. Receptor Binding Assay
 5. Chromatographic Analysis
 6. Immunoassay
-



MICROBIAL GROWTH INHIBITION

Equipment:

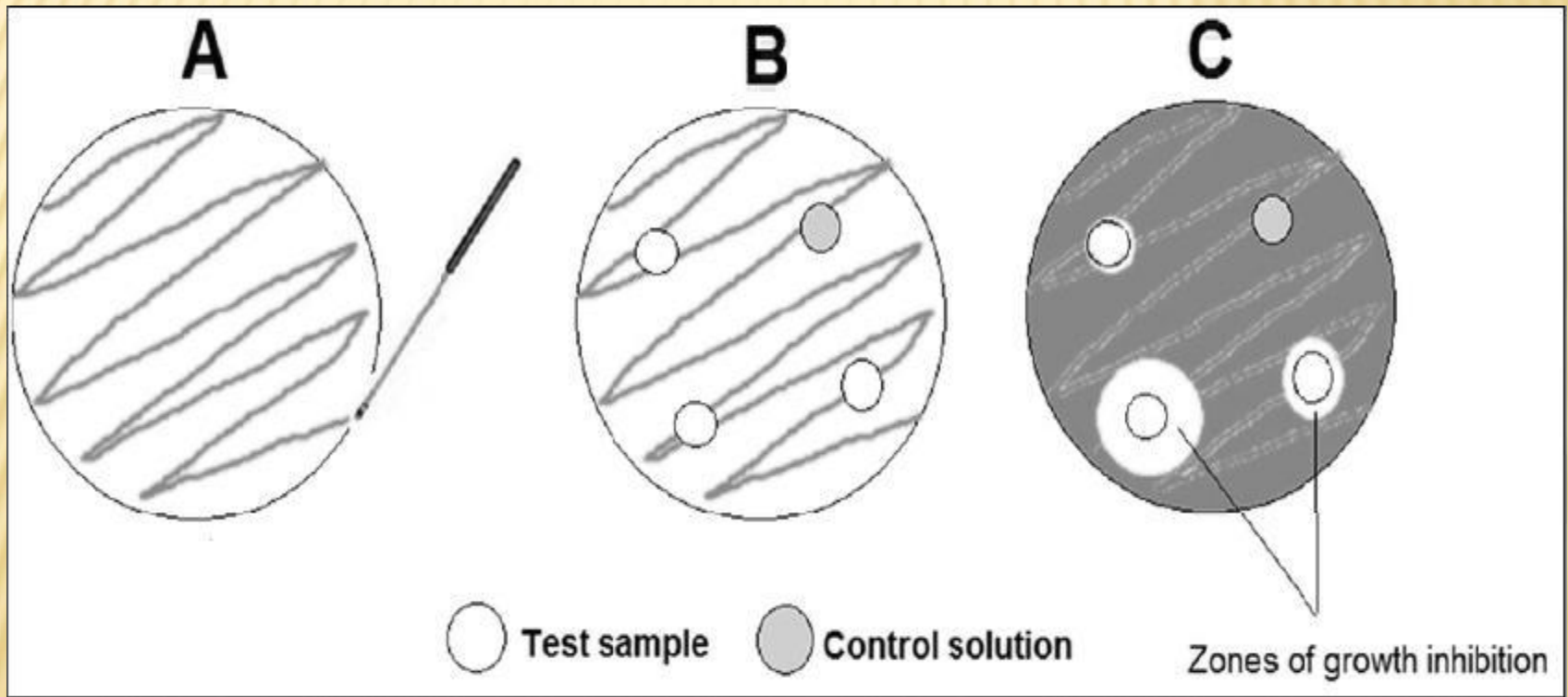
1. Milk sample
2. Nutrient agar
3. Sensitive bacteria for all kinds of antibiotics
(*Geobacillus stearothermophilus*)
4. Paper disks

Procedure

1. Prepare agar medium containing *Geobacillus stearothermophilus*
2. Dip the paper discs into the milk sample and place on the plate.
3. Incubate the plate for 24 h to 48 h at 37C.°

Results

- If there is antibiotic in the milk it will be inhibit growth of bacteria, produced a circle inhibition around the disc.



THANK YOU