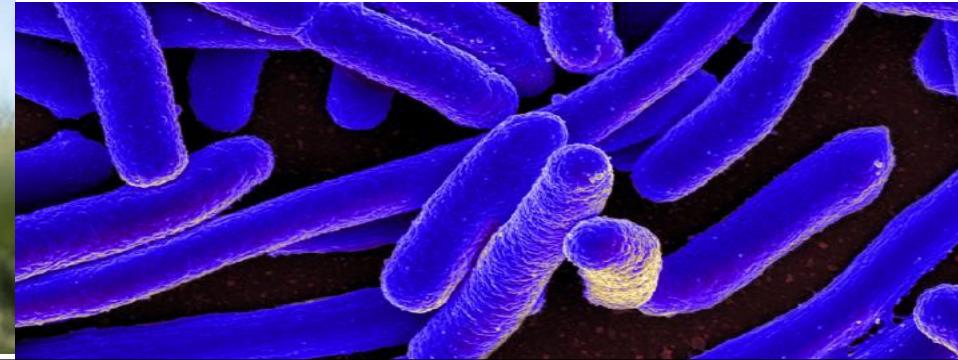


BACTERIA



KASADHA ABBEY
0772 509594

BACTERIA KINGDOM

SINGULAR

Bacterium

PLURAL

Bacteria

BACTERIA KINGDOM

What are bacteria?

These are microscopic single celled organisms



Where are bacteria found?

In contaminated water

In contaminated air

In the soil

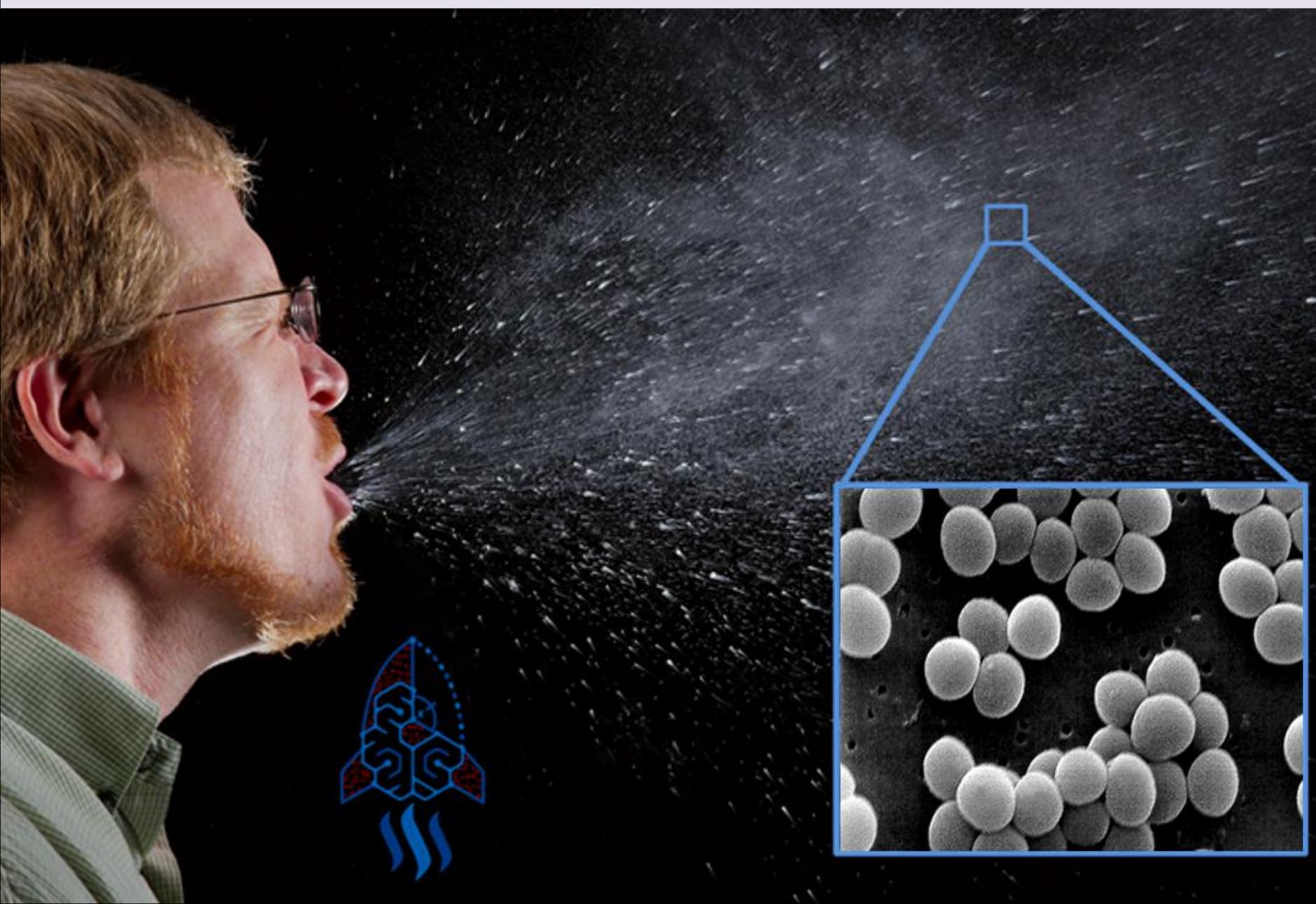
In contaminated food

Inside animals' guts

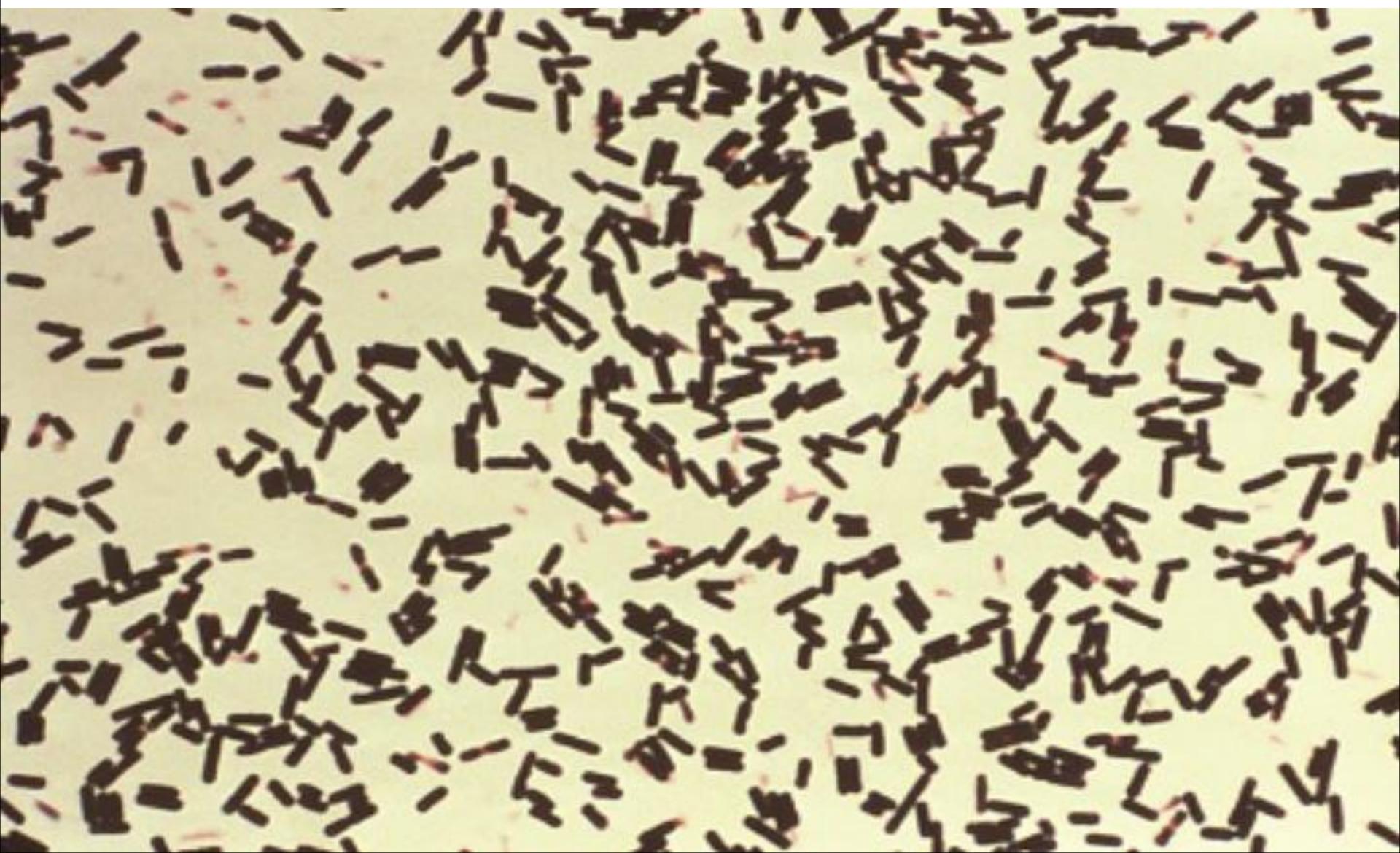
1.Bacteria in contaminated water



2. Bacteria in contaminated air



3.Bacteria in the soil



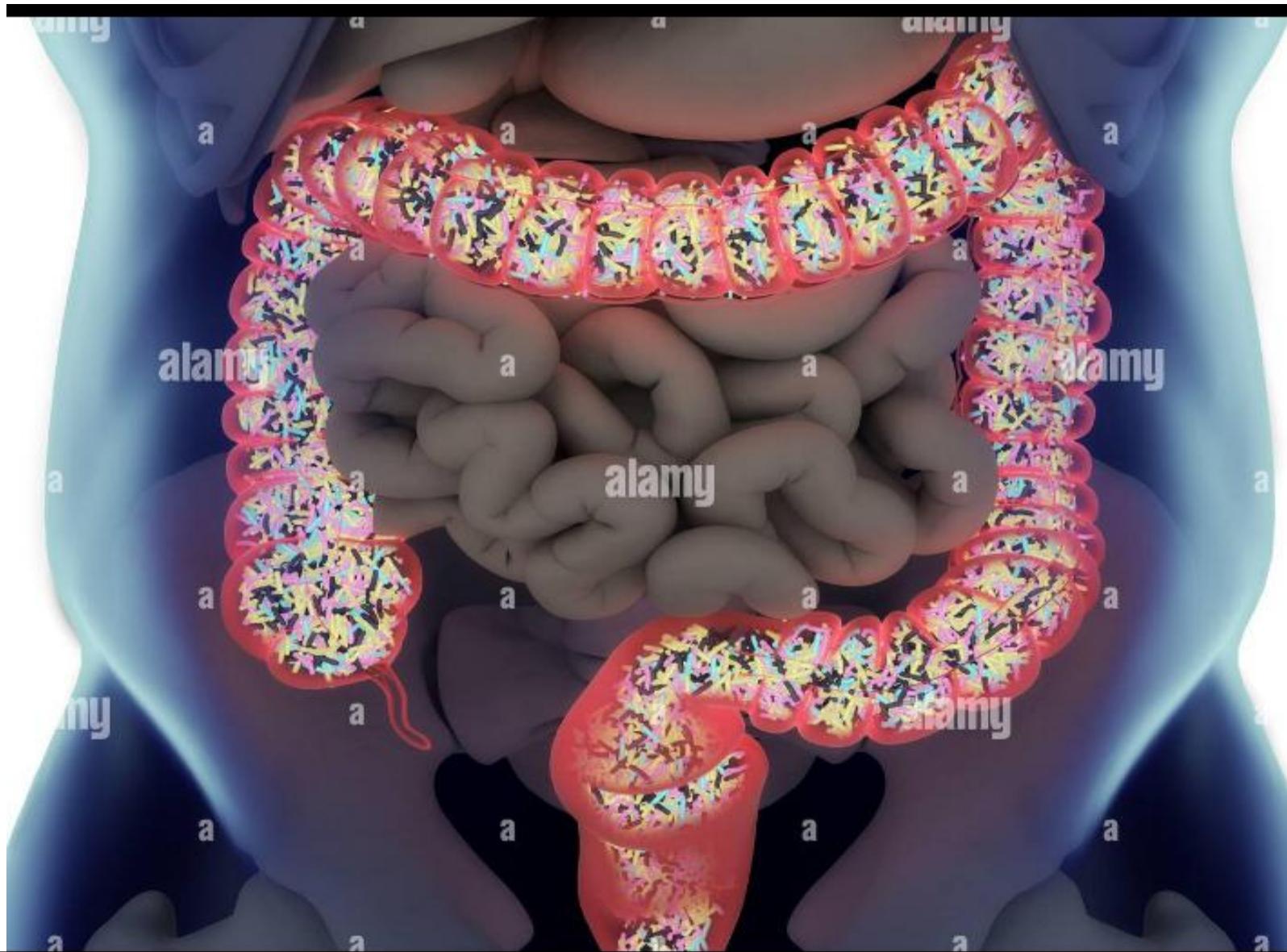
Bacteria in the soil



4.Bacteria in contaminated food



5. Bacteria in the gut of animals



Characteristics of bacteria

- 1. They are microscopic**
- 2. They are single celled organisms**
- 3. They reproduce by cell division / binary fission**
- 4. They move using flagella**

What are microscopic organisms?

**These are organisms that can only
be seen through a microscope**



A microscope is used to see very tiny objects that can not be seen with the naked eyes

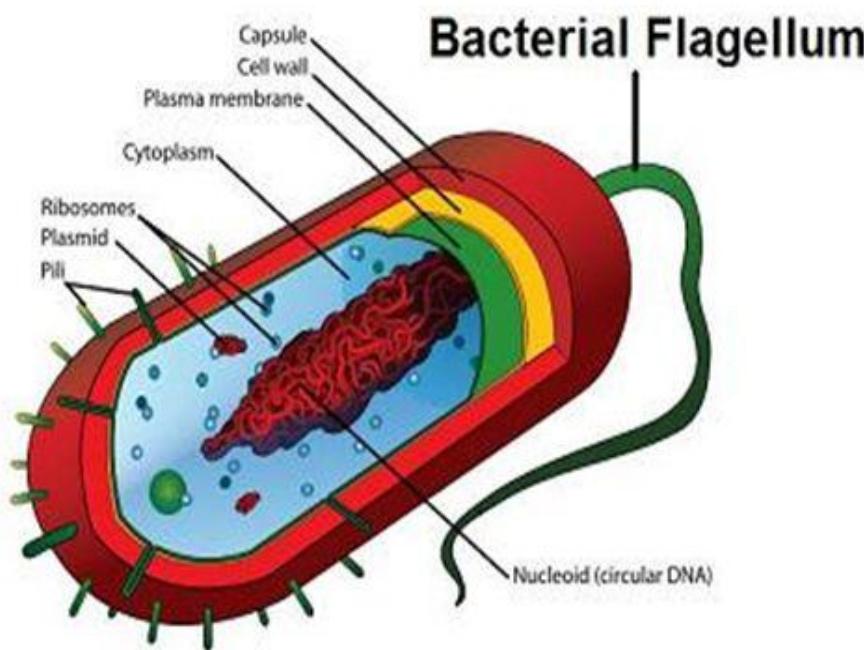


A microscope



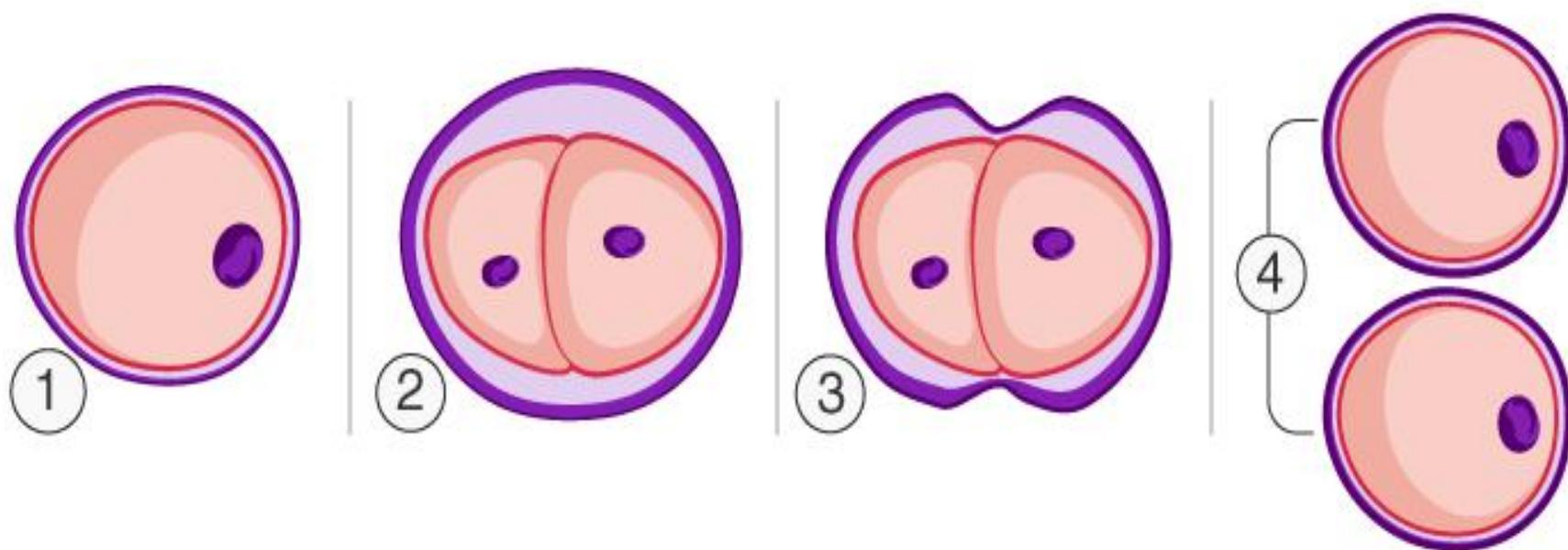
Flagella

- A flagellum is a whip-like structure that allows a cell to move.



Bacteria reproduce by cell division / binary fission

BINARY FISSION



1 Parent cell

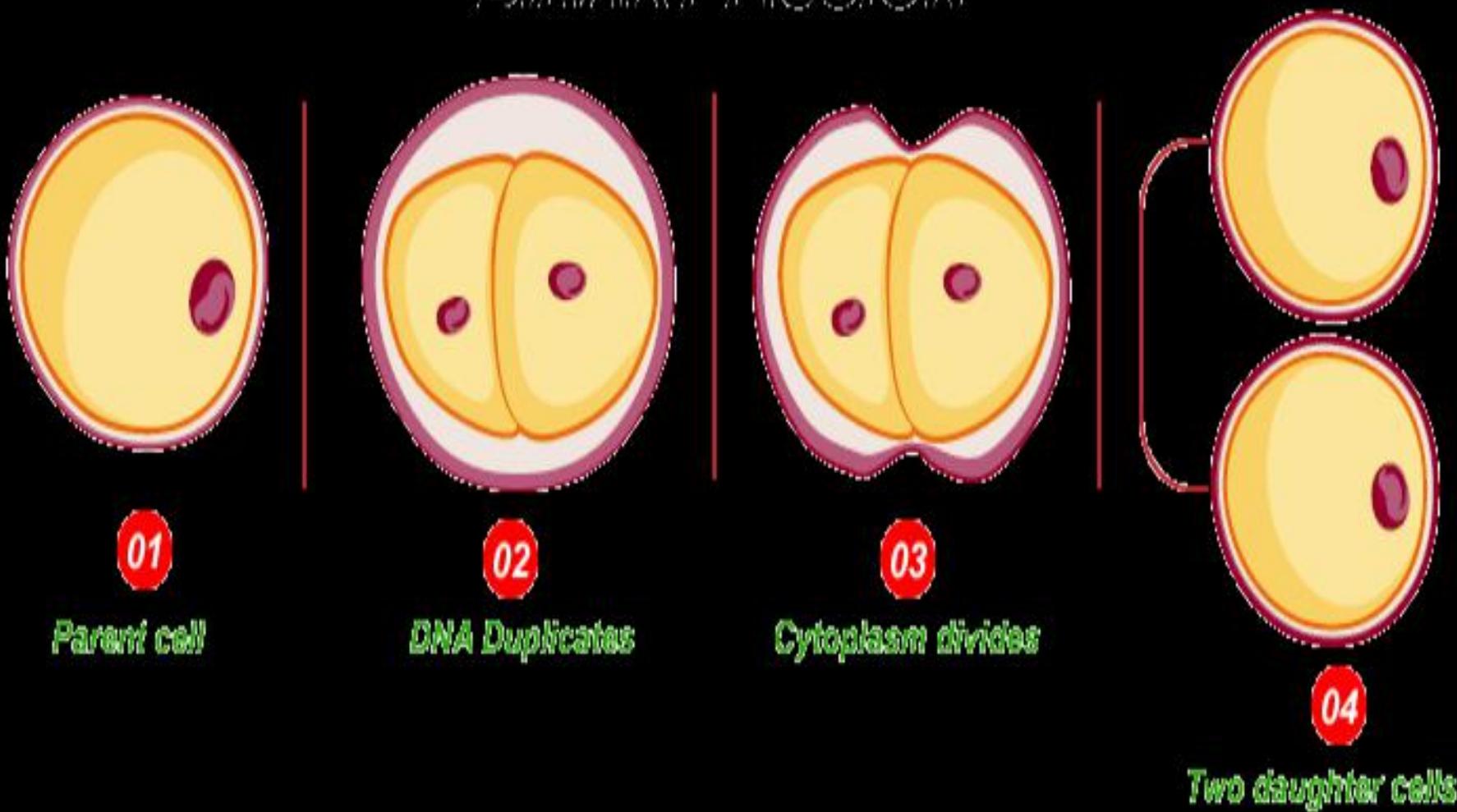
2 DNA Duplicates

3 Cytoplasm divides

4 Two daughter cells

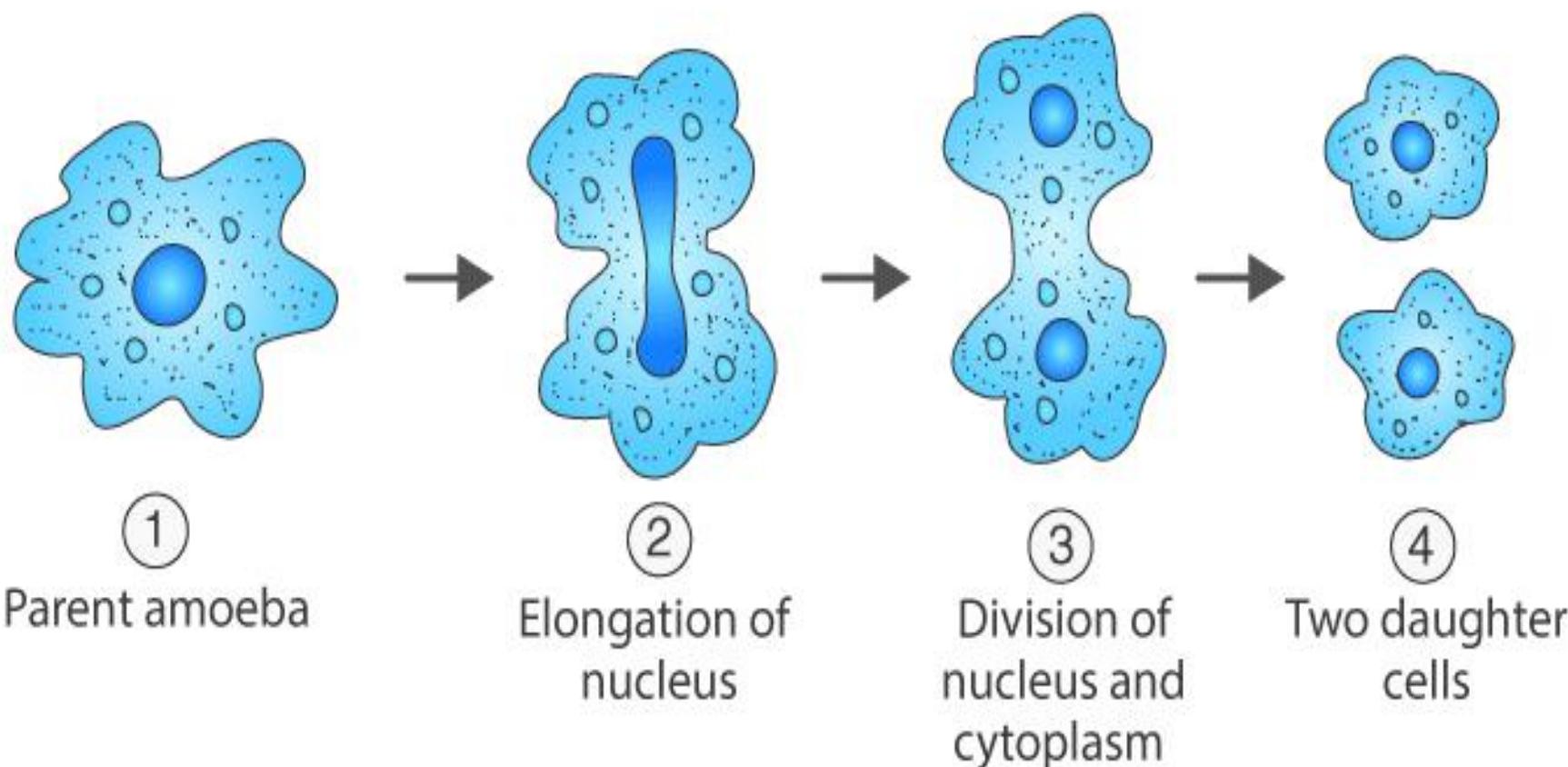
Binary fission in bacteria

BINARY FISSION



Amoeba also reproduce by binary fission

BINARY FISSION IN AMOEBA



Conditions that favour breeding of bacteria

Warmth

Moisture

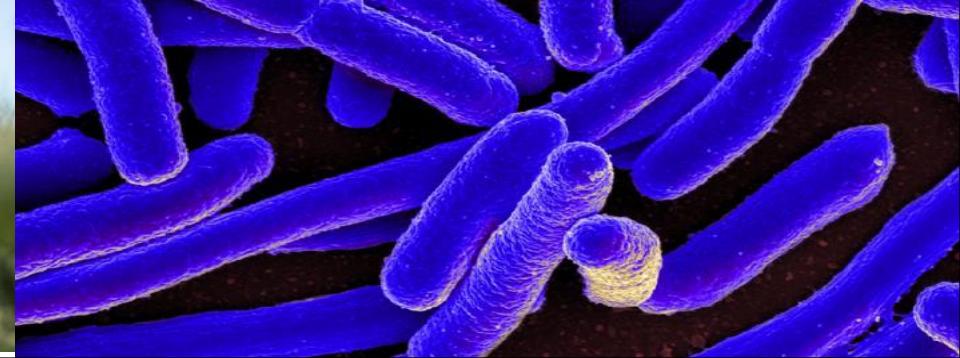
NB

Oxygen is also needed for the aerobes.

Activity

- **What are bacteria?**
- **Mention any two organisms that reproduce by binary fission**
- **State two conditions necessary for anaerobic bacteria to breed**
- **Why are bacteria regarded as microscopic?**

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Nature of bacteria

Useful bacteria

Harmful bacteria

Examples of useful bacteria

Nitrogen fixing bacteria

Putrefying bacteria

Anaerobic bacteria

Lactic acid bacteria

Nitrifying bacteria

Denitrifying bacteria

How are bacteria useful

1.Nitrogen fixing bacteria help in nitrogen fixing

**Nitrogen
Fixation**



What is nitrogen fixation ?

This is the process by which atmospheric nitrogen is converted into inorganic nitrogen compounds like ammonia

the process in which soil bacteria convert nitrogen gas into ammonia



nitrogen fixation

Legumes

Legumes help to store nitrogen fixing bacteria in the nodules of their roots

Nitrogen fixing bacteria helps in nitrogen fixation

Root nodules of leguminous plants



Nitrogen fixation is also done by lightning

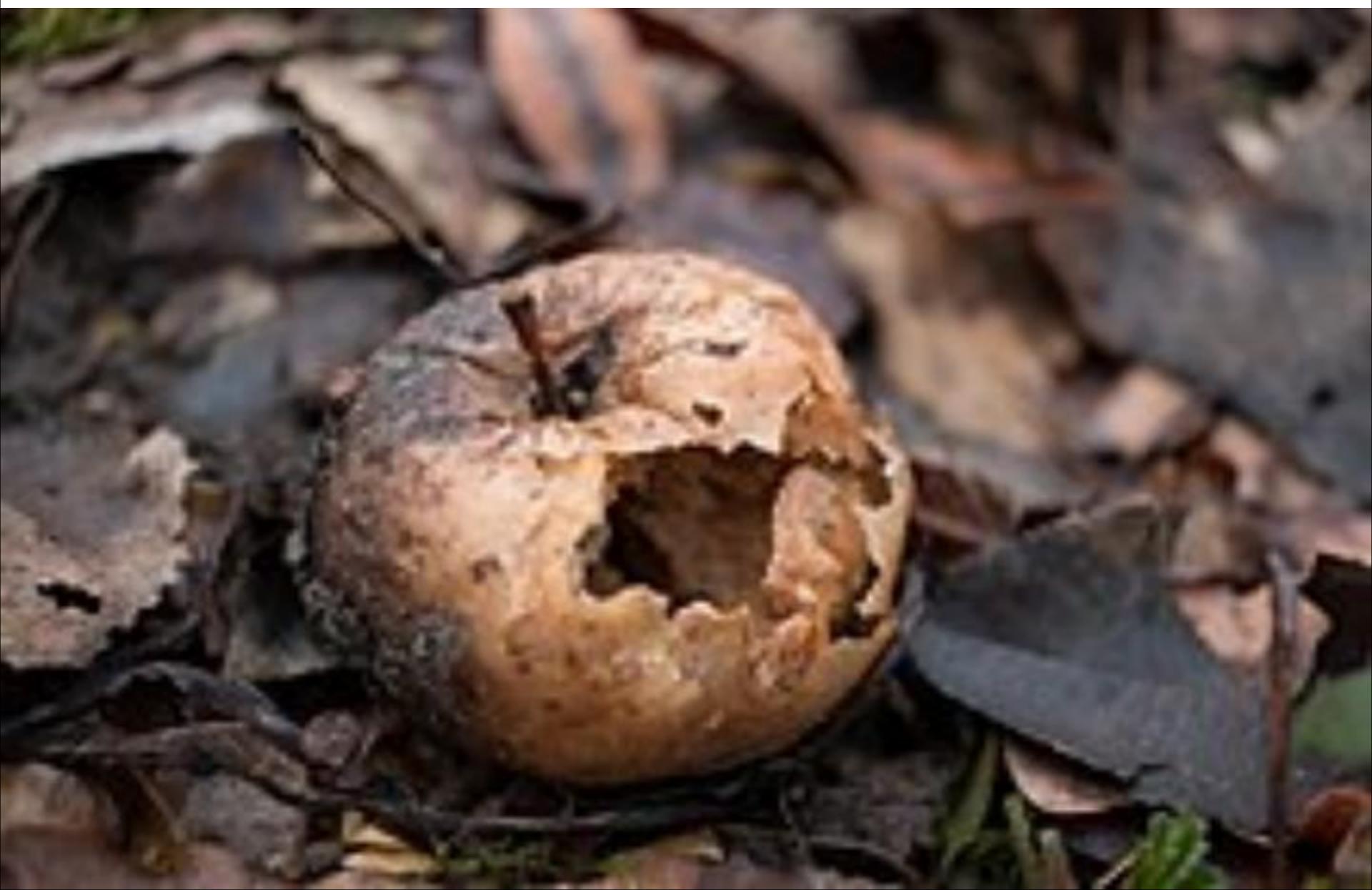


Putrefying bacteria

2. Putrefying bacteria help in decomposition

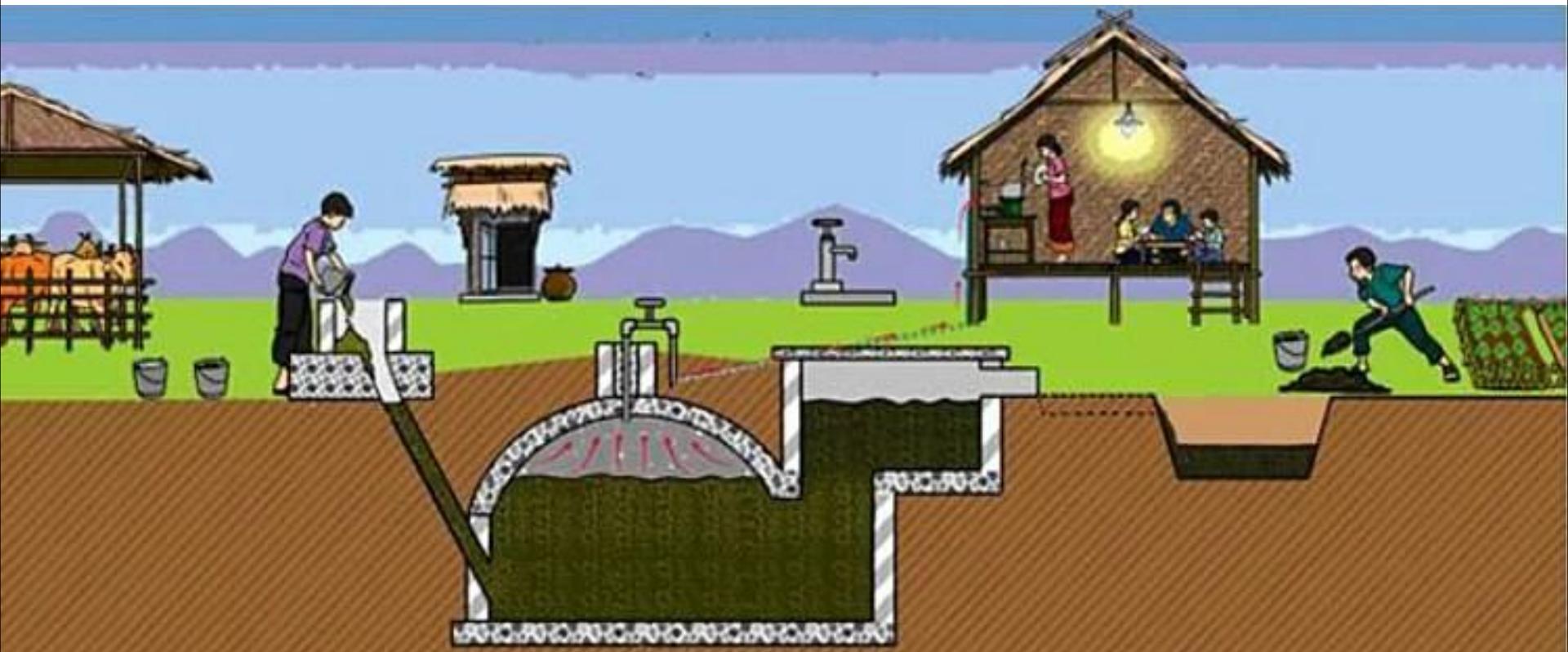


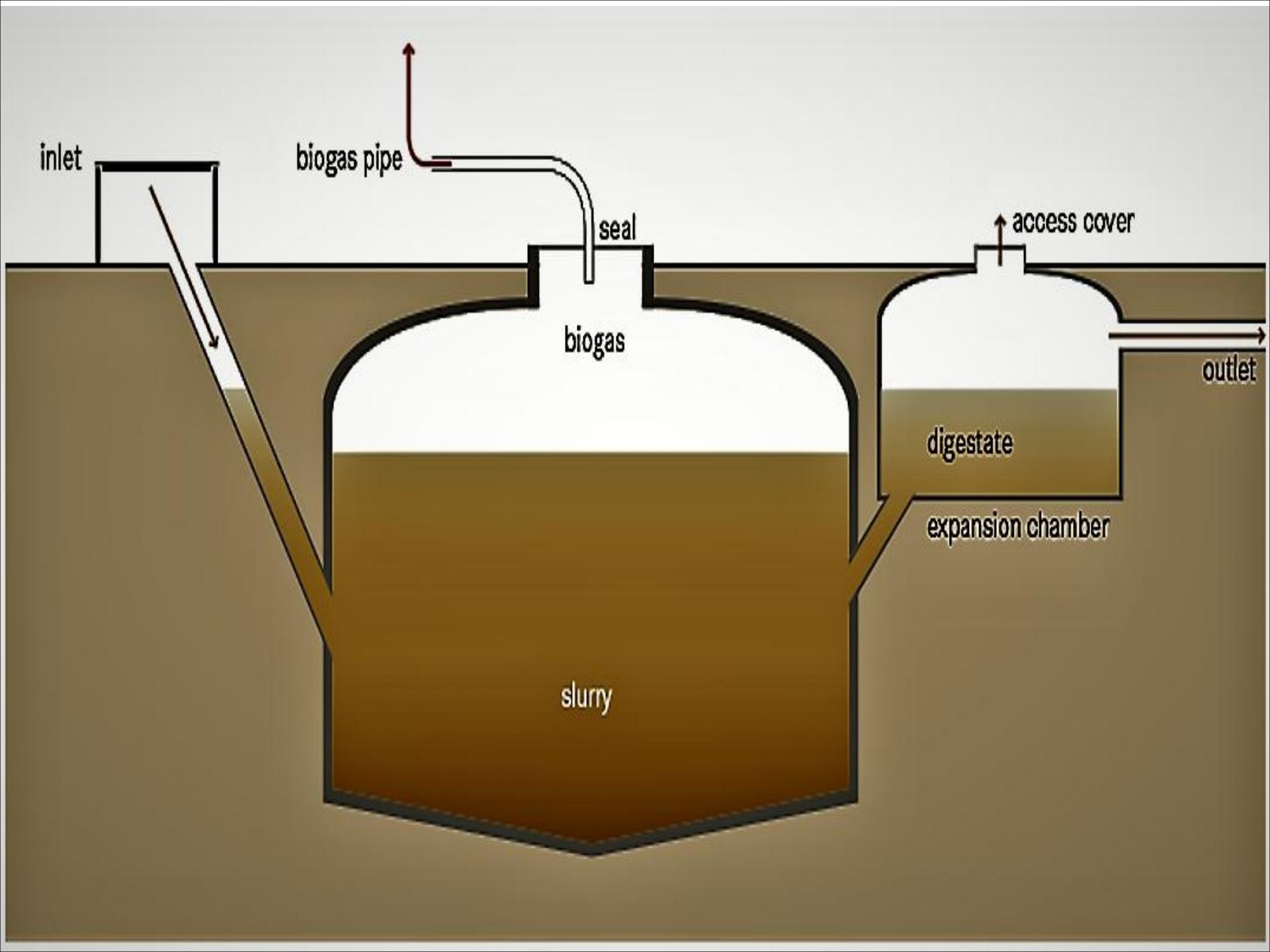
Putrefying bacteria



Anaerobic bacteria

3. Anaerobic bacteria help in the making of biogas





NANONJO FARM
FRESH AND NATURAL



4. Lactic acid bacteria

**These help in the making of
yoghurt and cheese**



Yoghurt



Cheese



Cheese



Nitrifying bacteria

5.These help in nitrification

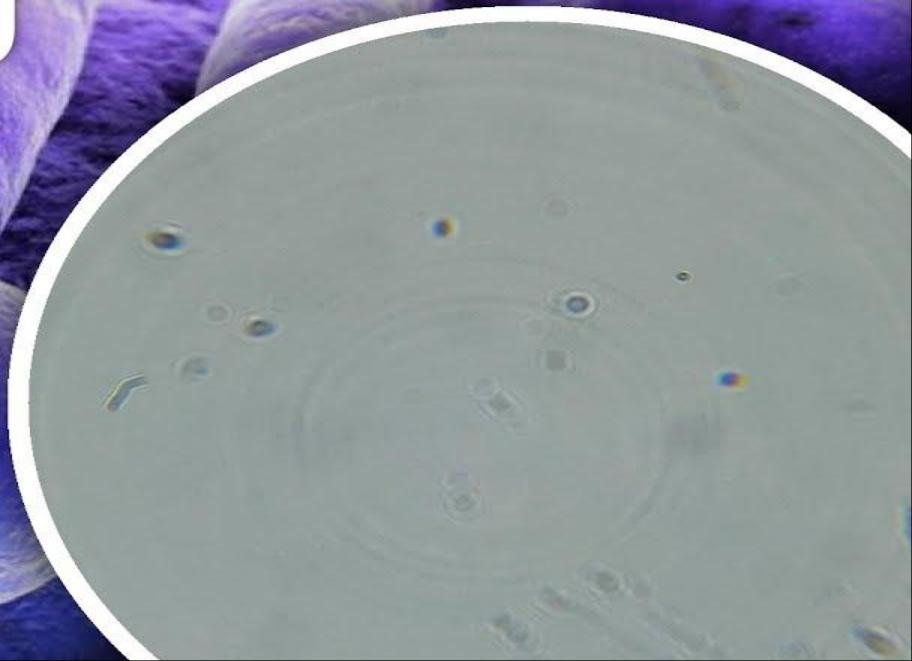
Nitrifying Bacteria

A close-up, microscopic image showing numerous long, thin, purple-colored bacterial filaments. These filaments are densely packed and exhibit a slightly wavy or coiled structure, characteristic of certain types of nitrifying bacteria like Nitrospina or Nitrosovibrio.

What is nitrification?

This is the oxidation of ammonia into nitrates

Nitrifying
bacteria



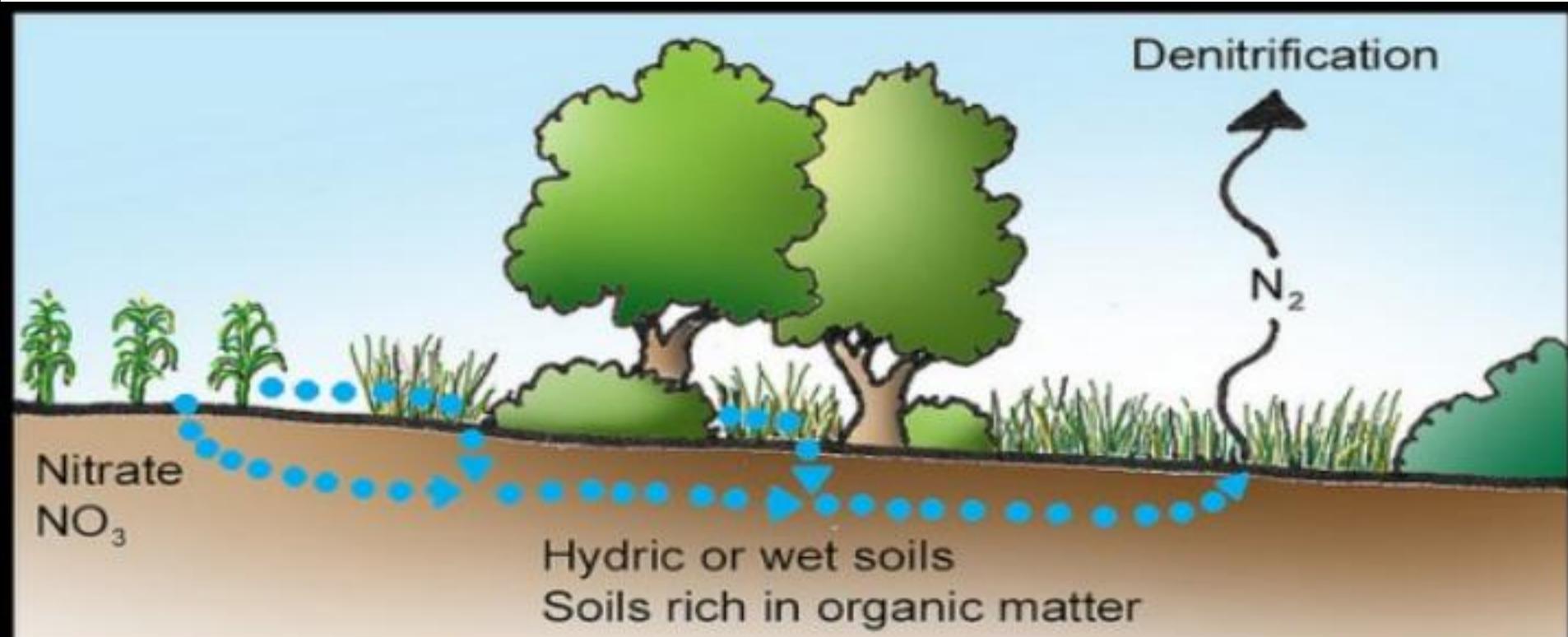
Denitrifying bacteria

6.Helps in denitrification

denitrification

What is denitrification?

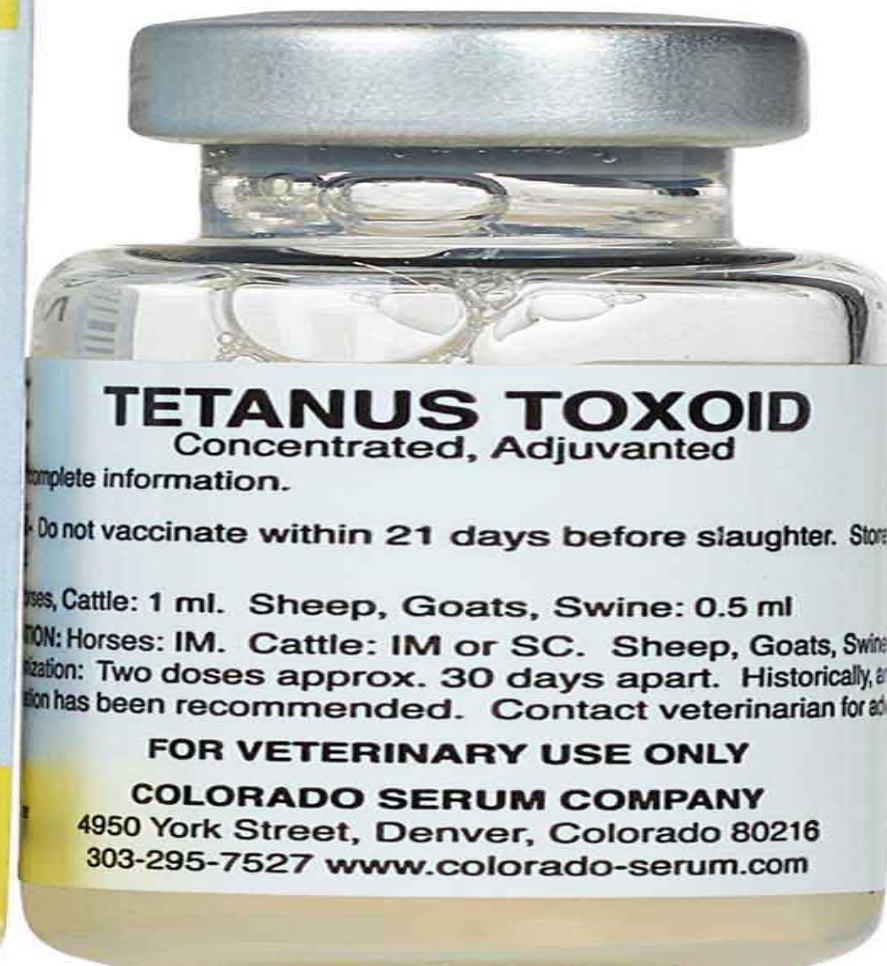
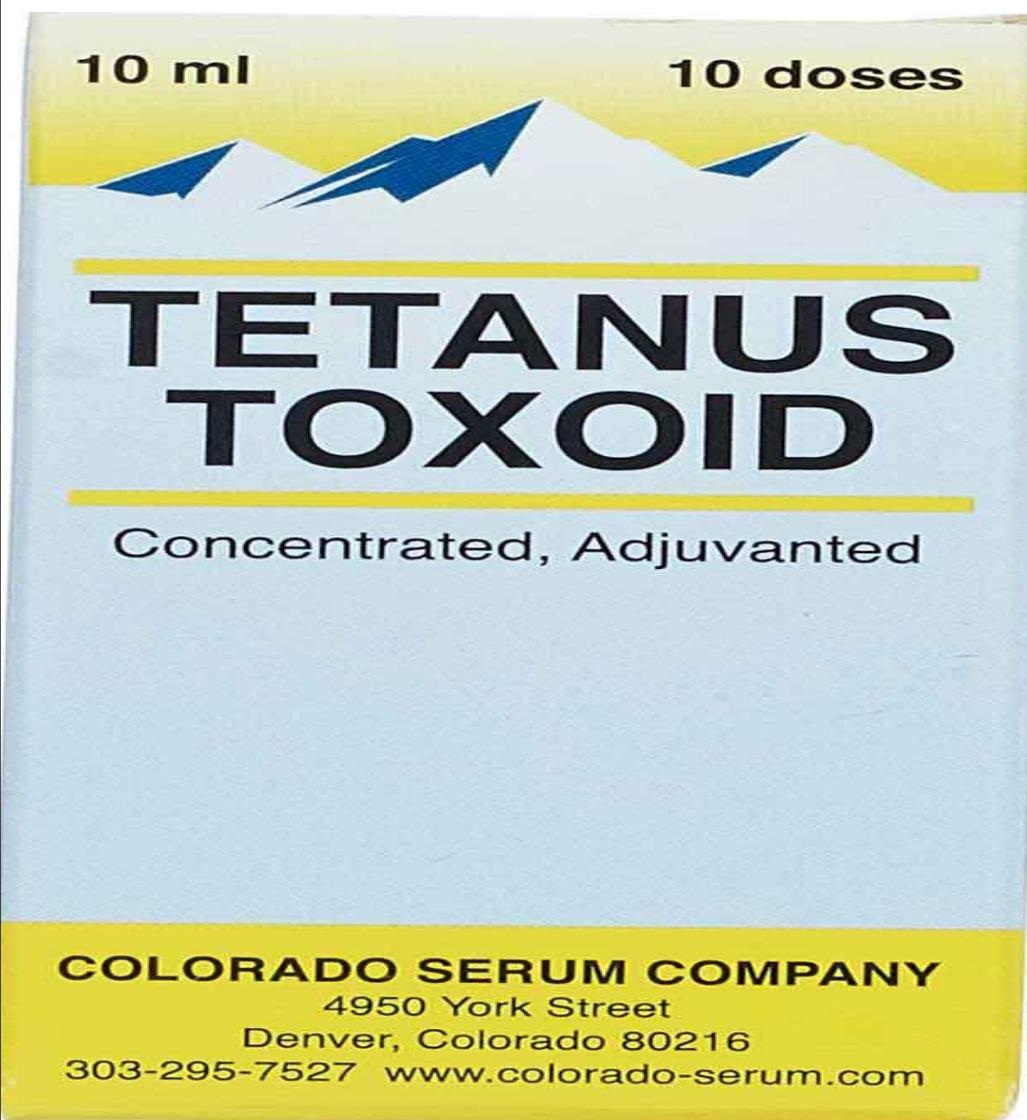
This is the conversion of nitrates into nitrogen gas



7. Toxins from bacteria are used in the making of vaccine like DPT and tetanus toxoid



Tetanus toxoid



Pregnant women are given tetanus toxoid to prevent neonatal tetanus



8. Bacteria help in the making of vitamin B₁₂



9. Bacteria are used in the making of vinegar

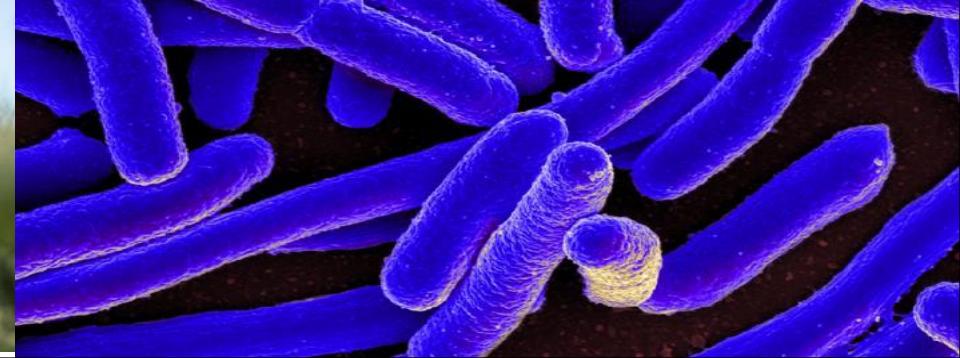




Activity

- **Mention any three uses of bacteria**
- **In which way is the mode of reproduction in bacteria:**
- **i) Different from that of yeast**
- **ii) Similar to that of yeast**
- **How is lightning similar to nitrogen fixing bacteria?**

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Examples of harmful bacteria

Gonococcus

Chlamydia trachomatis

Salmonella typhi

Treponema pallidum

Bacillus anthracis

Vibrio cholerae

Myobacterium leprae

How are bacteria harmful?



1. Bacteria cause diseases

Examples of bacterial diseases

- **Gonorrhoea**
- **Pertusis**
- **Tetanus**
- **Cholera**
- **Syphilis**
- **Pneumonia**
- **Typhoid**
- **Diphtheria**
- **Tuberculosis**
- **Leprosy**
- **Anthrax**
- **Fowl pox**
- **Foot rot**
- **Fowl typhoid**
- **Mastitis**
- **Banana bacterial wilt**
- **Bacterial wilt**
- **Bacterial blight**
- **Fire blight**
- **Citrus canker**
- **Tuber soft rot**

Mastitis



Mastitis



Mastitis



impetigo



Impetigo



Leprosy



Gonorrhoea in babies



Gonorrhoea in males



Pain while passing out urine



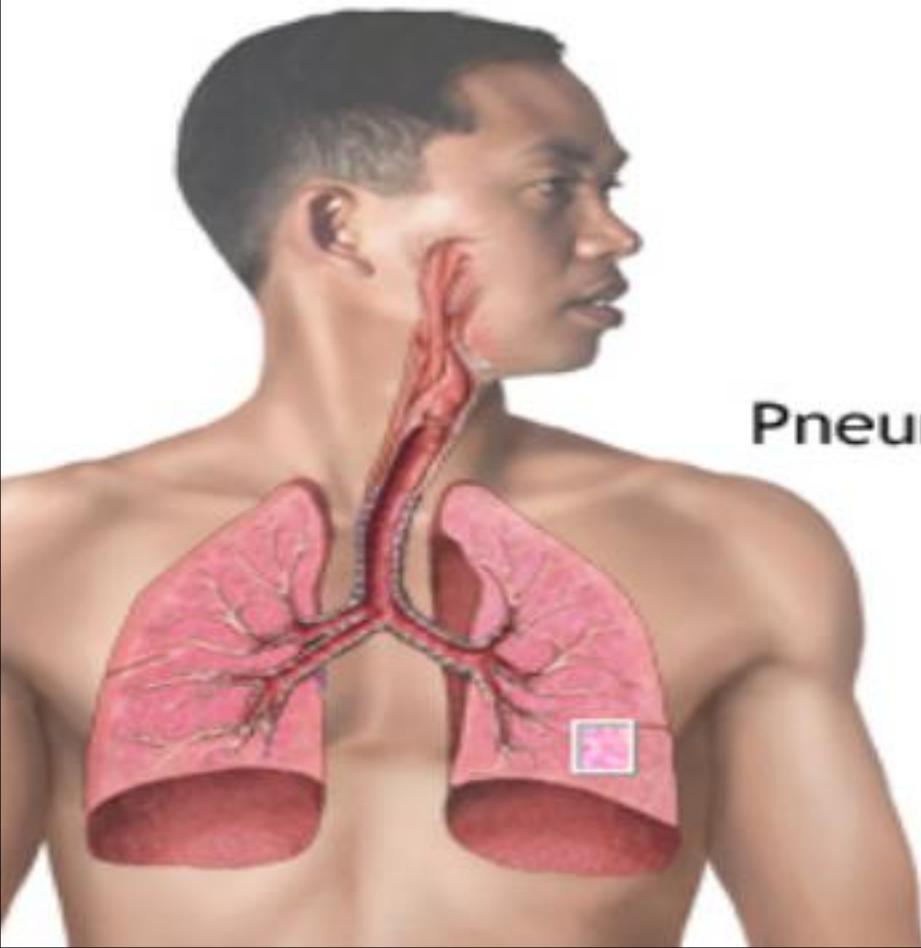
Gonorrhoea in males



Syphilis

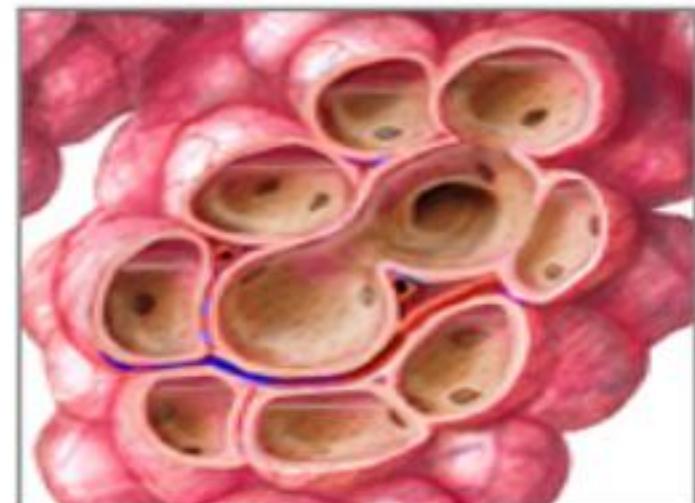
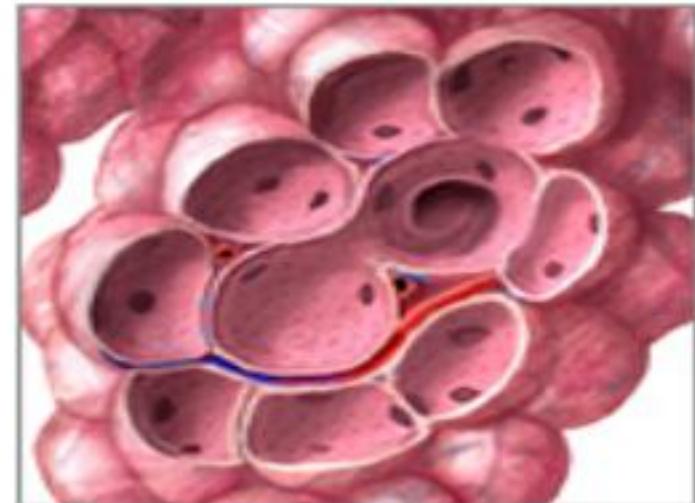


Pneumonia



Pneumonia

Normal
alveoli



Signs and symptoms of pneumonia



**sneezing and
runny nose**



productive cough



sore throat



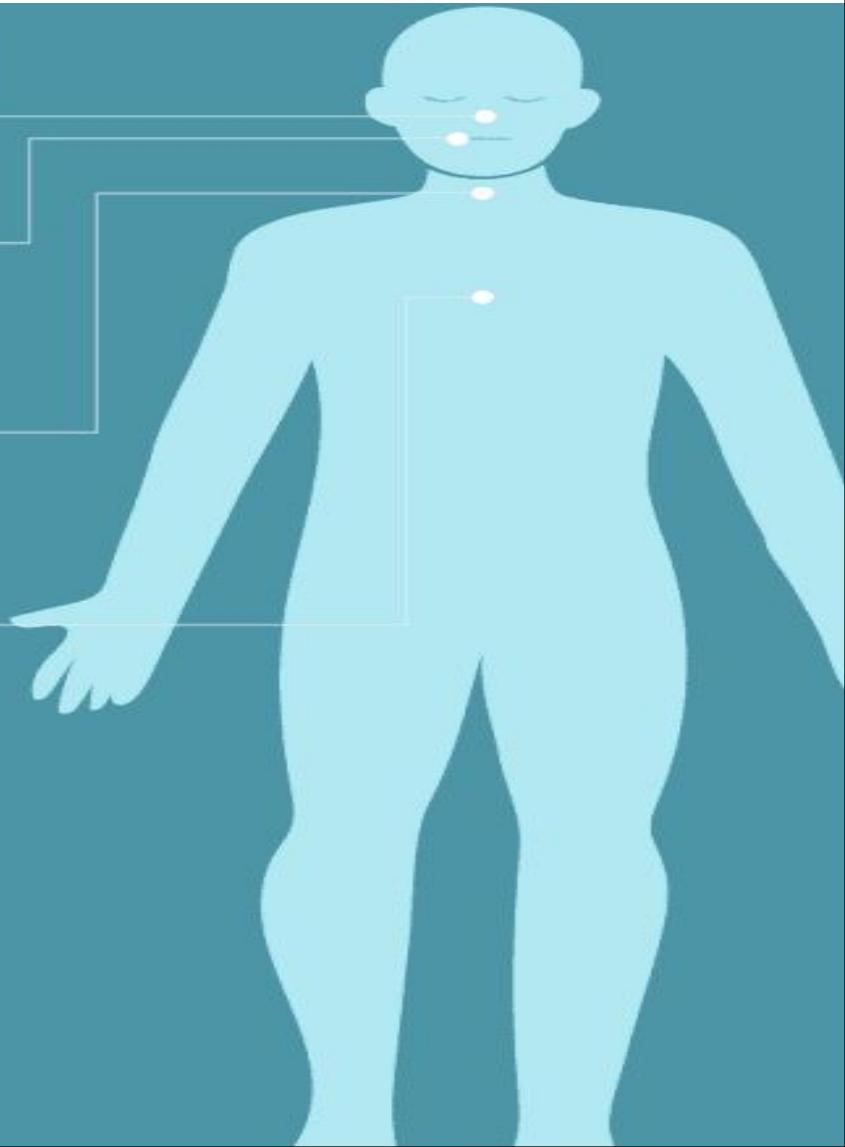
chest pain



**fatigue and
muscle aches**



**gray or bluish
skin color**



Tuberculosis



Tuberculosis signs and symptoms

Symptoms of TB in Lungs



FATIGUE



FEVER



FATIGUE



SWEATING AT NIGHT



CHEST PAIN



LUNG DAMAGE

Signs and symptoms of tuberculosis

Pulmonary Tuberculosis

Symptoms



fever



**night
sweats**



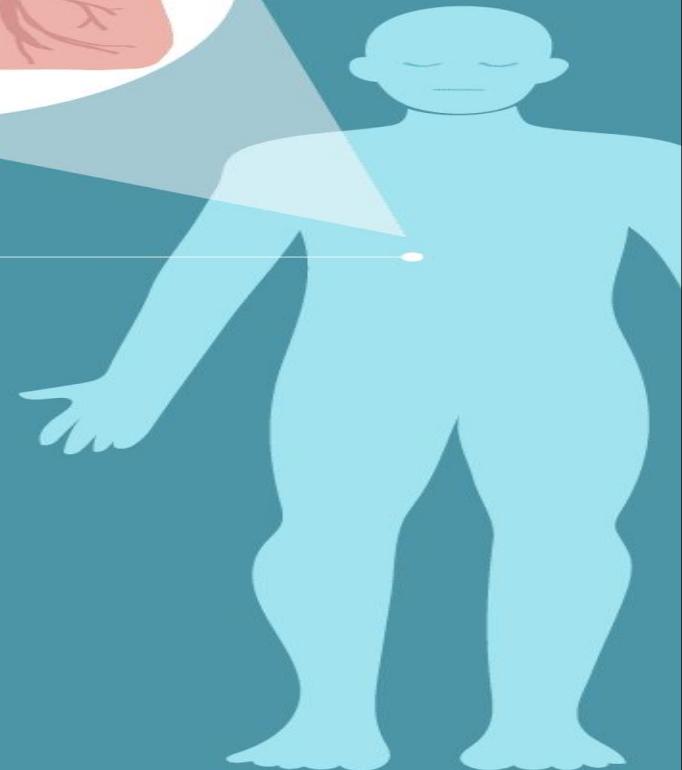
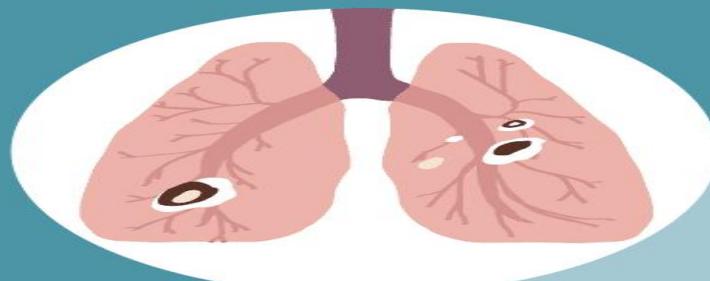
**persistent
cough**



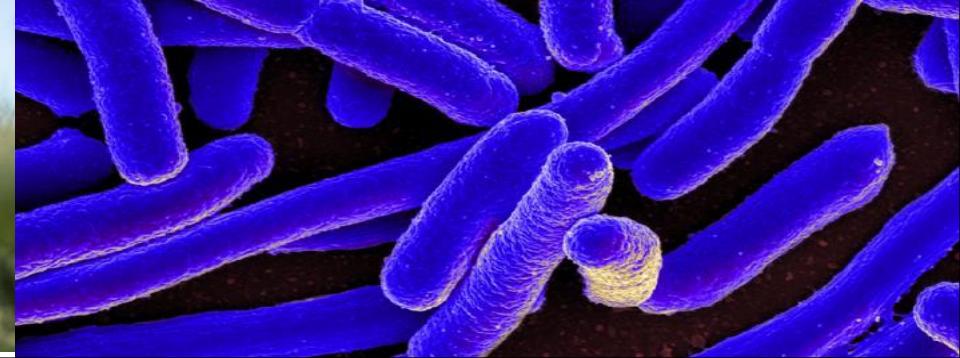
**bloody
phlegm**



**chest pain or
shortness of
breath**



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Examples of bacterial diseases in plants

Banana bacterial wilt

Bacterial wilt

Bacterial blight

Fire blight

Citrus canker

Tuber soft rot

Banana bacterial wilt



Banana bacterial wilt



Fire blight



Citrus canker



Citrus canker



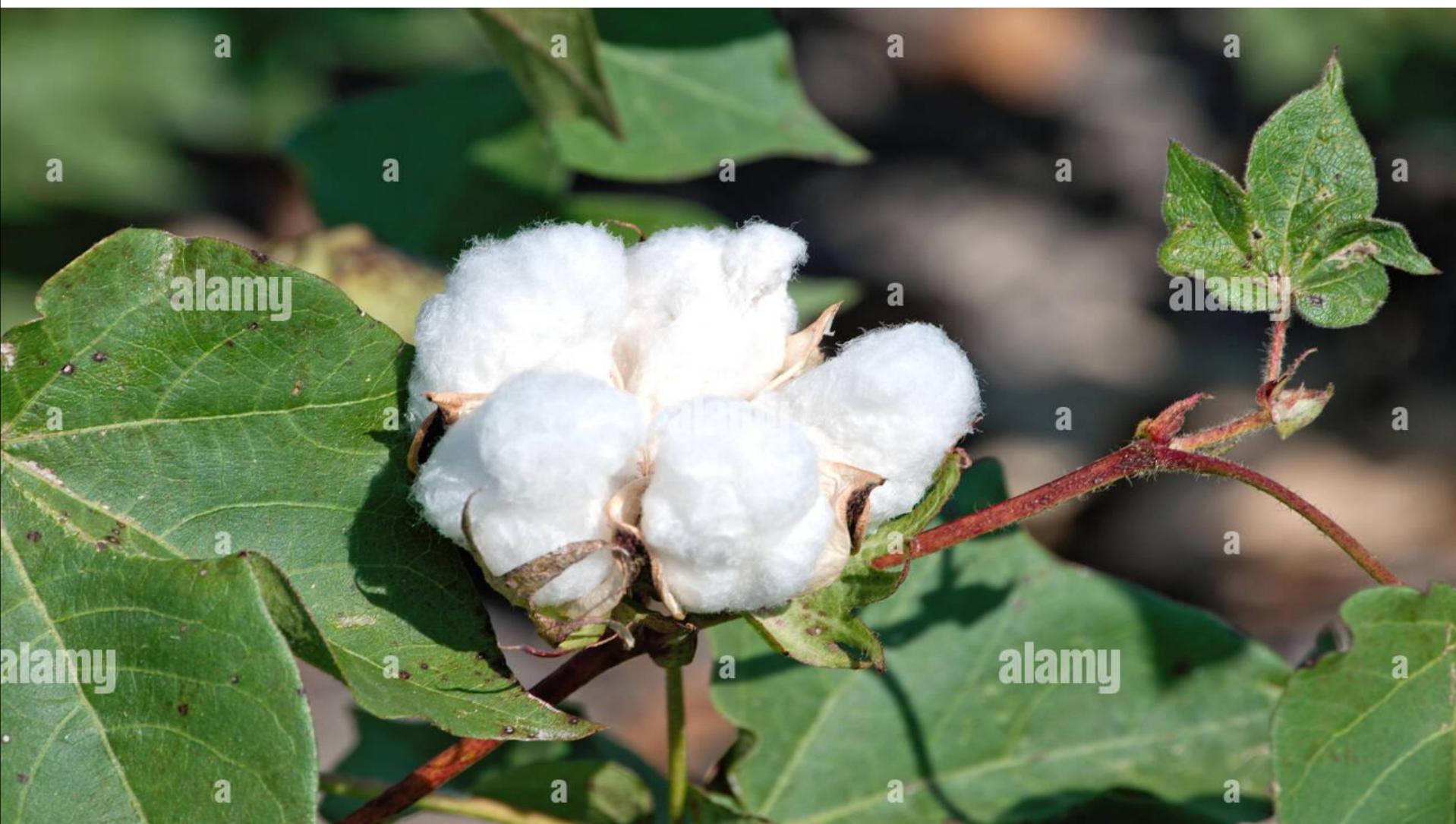
Bacterial wilt



Bacterial blight



Bacterial blight affects the cotton plant



alamy

Image ID: PCY365
www.alamy.com

Tuber soft rot



2. Bacteria can spoil food



Contaminated food can lead to food poisoning



What is food poisoning?

This is an illness caused by eating food that has been contaminated by germs

Food poisoning is also called food borne illness

Signs and symptoms of food poisoning

Vomiting

Diarrhoea

Stomachache

Nausea

Diarrhoea



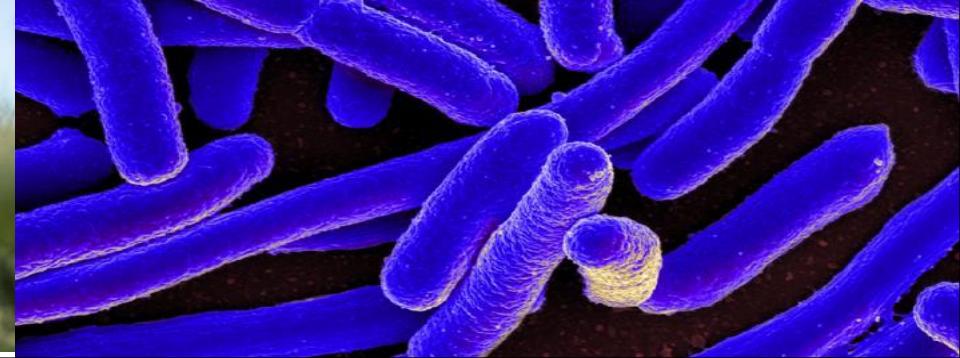
Vomiting



Activity

- **Give any one danger of bacteria**
- **Write down any two bacterial diseases in:**
 - i) **Poultry**
 - ii) **Cattle**
 - iii) **Plants**
- **How Is does pasteurisation method preserve milk?**

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