

# Culture



*By*

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# Identification of microorganisms

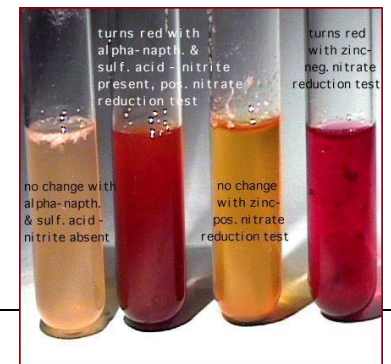
□ Microscopical examination.



□ Culture.



□ Biochemical examination.





# Culture



- ❑ In lab, bacteria must be **cultured** to facilitate identification & examination of growth & metabolism.
- ❑ Bacteria are inoculated or introduced to various forms of **culture media** to keep them alive.
- ❑ Inoculation must be under **aseptic conditions** to exclude contamination & other unwanted microbes.

## ❑ *Types of culture media:*

❑ Classification is according to:

- ✓ Physical state.
- ✓ Chemical composition

# Culture



**Culture  
media**



# Culture



## Types of culture media:

Classification is according to:

### ✓ Physical state.

- liquid media.
- Semisolid media.
- Solid media.

### ✓ Chemical composition.

- Synthetic media.
- Non synthetic media.

### ✓ Functional type.



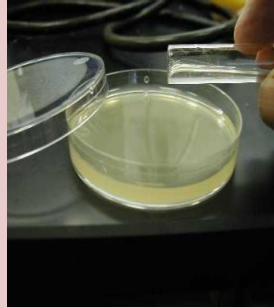

- Basic media.
- Enriched media.
- Selective media.



# Culture



## According to physical state

Liquid media	Semisolid media	Solid media
By dissolving nutrients in <i>sterile</i> water & growth give <i>turbid</i> appearance.	By adding small amount of solidifying agent ( <i>agar 0.5%</i> ) to fluid media	By adding larger amount of solidifying agent ( <i>agar 1.5%</i> ) to fluid media.
Ex: Nutrient Broth	Ex: Soft Agar	Ex: Nutrient Agar
		 





# Culture



## According to chemical composition:

Synthetic media	Non synthetic media
Chemically <b>defined</b> media.	Chemically <b>undefined</b> media
contain <b>known</b> pure organic or inorganic compounds <b>needed</b> for growth.	It is extract of animal or plant with <b>unknown</b> composition.
Used usually in research.	Ex: blood, serum, meat extract.



# Culture



## According to functional type:

Basic media	Enriched media	Selective media	Differential media
Contain mixture of nutrients that support growth of most M.O	Contain basic components enriched with blood or serum to support growth of some bacteria	Contain an agent that inhibit growth of some M.Os & support growth of others.	Support growth of several M.Os with differentiation between them acc. To change in colonies color

Ex: Nutrient  
B  
N



Ex:



Ex:





# Culture



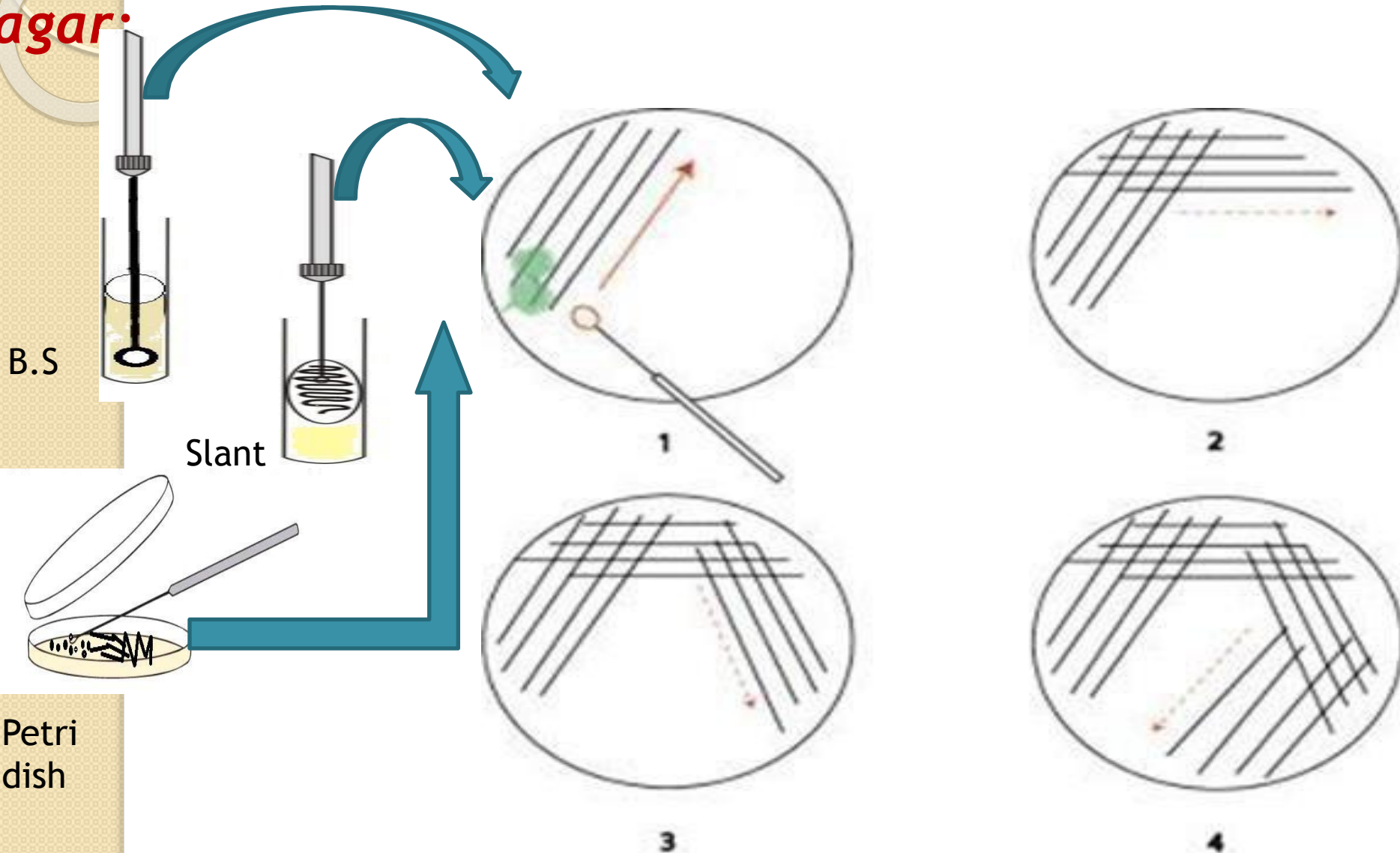
**Isolation  
of  
bacteria**



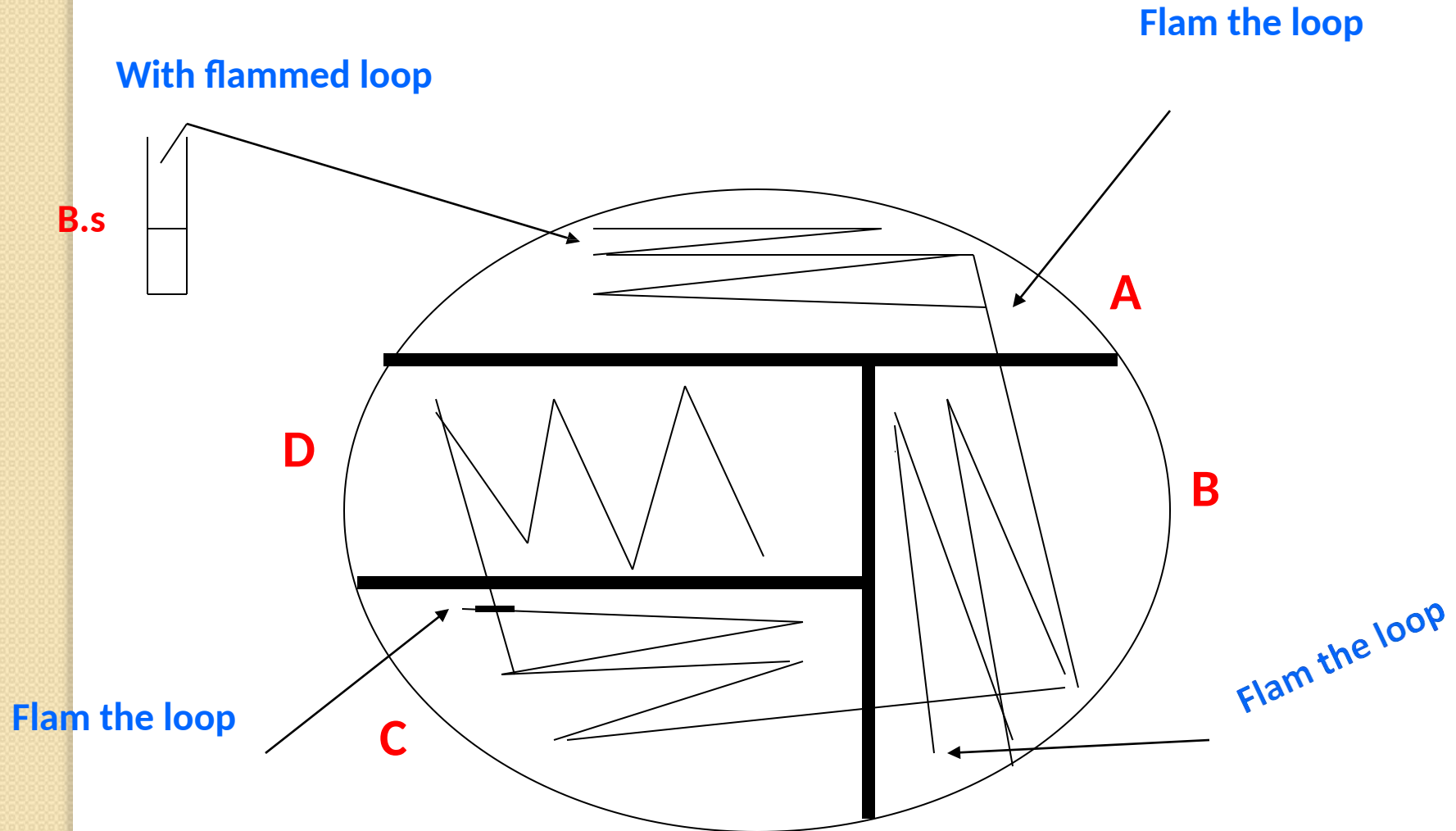
# Culture



## Inoculation & isolation of bacteria on nutrient agar:



Cultivation is near the flame





# Culture



Then incubate at **37°C** for **24 hrs** in incubator





# Culture



After  
*incubation :*



























# Culture



## Colony

## D

Shape						
	Circular	Rhizoid	Irregular	Filamentous	Spindle	
Margin						
	Entire	Undulate	Lobate	Curled	Rhizoid	Filamentous
Elevation						
	Flat	Raised	Convex	Pulvinate	Umbonate	
Size						
	Punctiform	Small	Moderate	Large		
Texture	Smooth or rough					
Appearance	Glistening (shiny) or dull					
Pigmentation	Nonpigmented (e.g., cream, tan, white) Pigmented (e.g., purple, red, yellow)					
Optical property	Opaque, translucent, transparent					





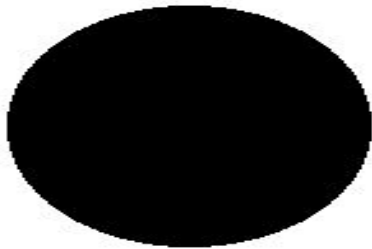
# Culture



## Colony

## Describe

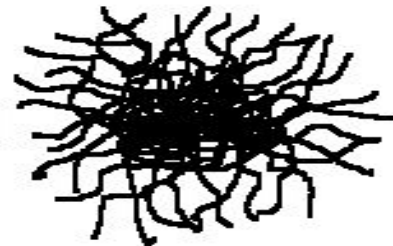
### Form



Circular



Irregular



Filamentous



Rhizoid

### Elevation



Raised



Convex



Flat

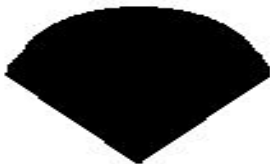


Umbonate



Crateriform

### Margin



Entire



Undulate



Filiform



Curled



Lobate



# Culture



## Colony

## Description:



Basillus subtilis on  
N.A



Staphylococcus aureus on  
N.A

# Culture

## Colony

### Shape



Circular



Rhizoid



Irregular



Filamentous



Spindle

### Margin



Entire



Undulate



Lobate



Curled



Rhizoid



Filamentous

### Elevation



Flat



Raised



Convex



Pulvinate



Umbonate

### Size



Punctiform



Small



Moderate



Large

### Texture

Smooth or rough

### Appearance

Glistening (shiny) or dull

### Pigmentation

Nonpigmented (e.g., cream, tan, white)

Pigmented (e.g., purple, red, yellow)

### Optical property

Opaque, translucent, transparent







**Good luck  
&  
See you next lab**