



Third stage/ microbiology lab



Bacterial colony morphology

&

Pure culture techniques

lab- 3

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OBJECTIVES

- DEFINE BACTERIAL COLONY AND LEARN ABOUT SOME BACTERIAL COLONY MORPHOLOGICAL PROPERTIES.
- DEFINE PURE CULTURE.
- LEARN ABOUT THE PURE CULTURE TECHNIQUE



COLONIAL MORPHOLOGY

COLONY:- IS A CLUSTER OF CELLS THAT ORIGINATE FROM MULTIPLICATION OF A SINGLE BACTERIA AND REPRESENT THE GROWTH OF A SINGLE SPECIES OF MICROORGANISM

SUCH DEFINED AND WELL ISOLATED COLONY CAN SERVE AS THE SOURCE FOR ESTABLISHMENT OF A **PURE CULTURE**.

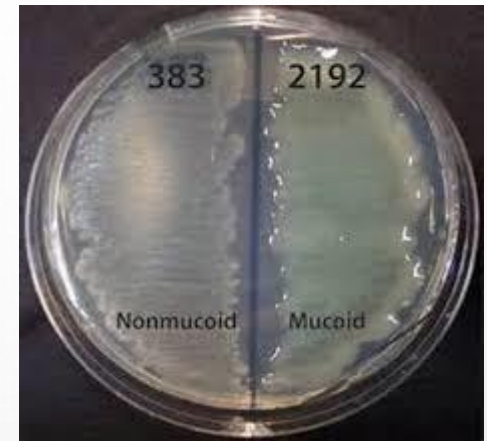


- **PIGMENTATION:-** WHITE, YELLOW, RED
- **ODOR:** EXAMPLE THE *PSEUDOMONAS* GIVE BAD APPLE ODOR, AND THE *E.COLI* GIVE FISH ODOR.
- **CONSISTENCY:** DRY, MUCOID, GRANULAR
- **TRANSPARENCY:** OPAQUE, TRANSLUCENT, TRANSPARENT
- **EFFECT ON MEDIA:** HEMOLYSIS (ALPHA, BETA, GAMMA), PIGMENT PRODUCTION LEAD TO CHANGE THE COLOR OF MEDIA, EXAMPLE THE *PSEUDOMONAS* GIVE GREEN BLUE COLOR IN THE NUTRIENT AGAR.

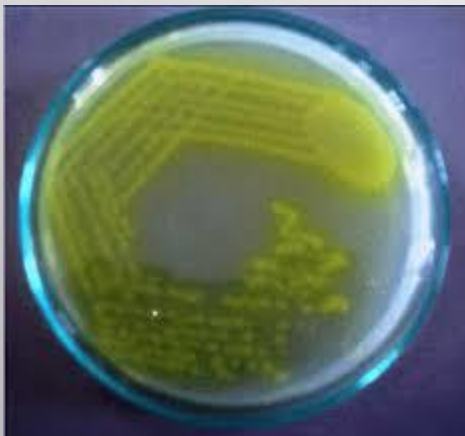




Coloured bacterial colonies



Dry and mucoid bacterial colonies



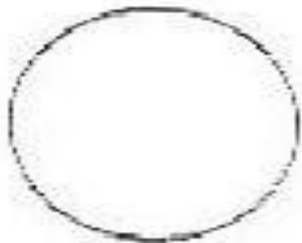
***Pseudomonas* on Nutrient agar**



***Pseudomonas* on Nutrient agar**

CULTURAL CHARACTERISTICS OF MICROORGANISMS

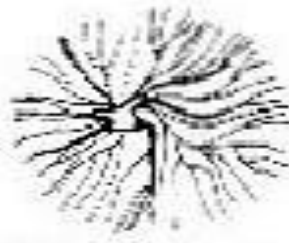
- **SIZE:** PINPOINT, SMALL, MODERATE, LARGE
- **FORM:** CIRCULAR, IRREGULAR, FILAMENTOUS, RHIZOID, CURLED



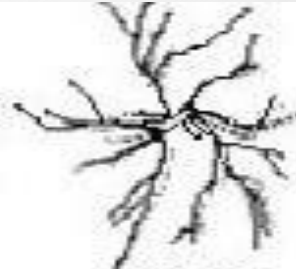
round



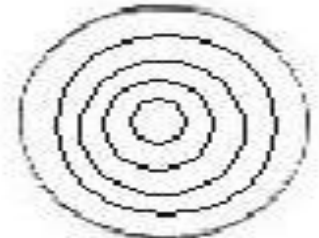
irregular



filamentous



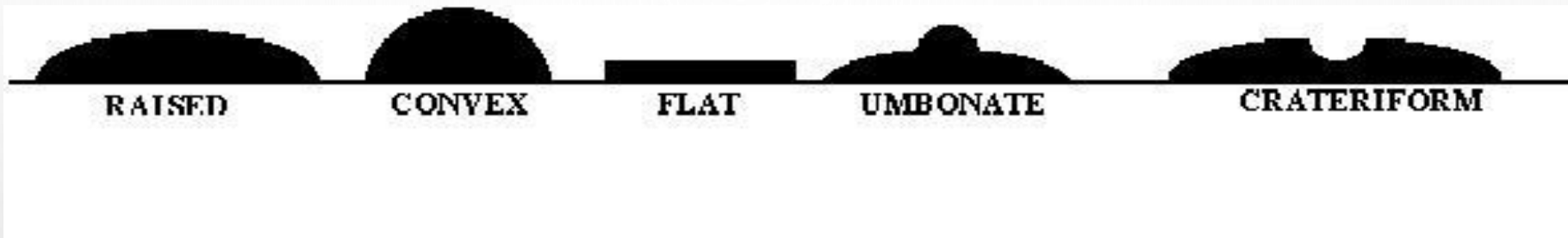
rhizoid



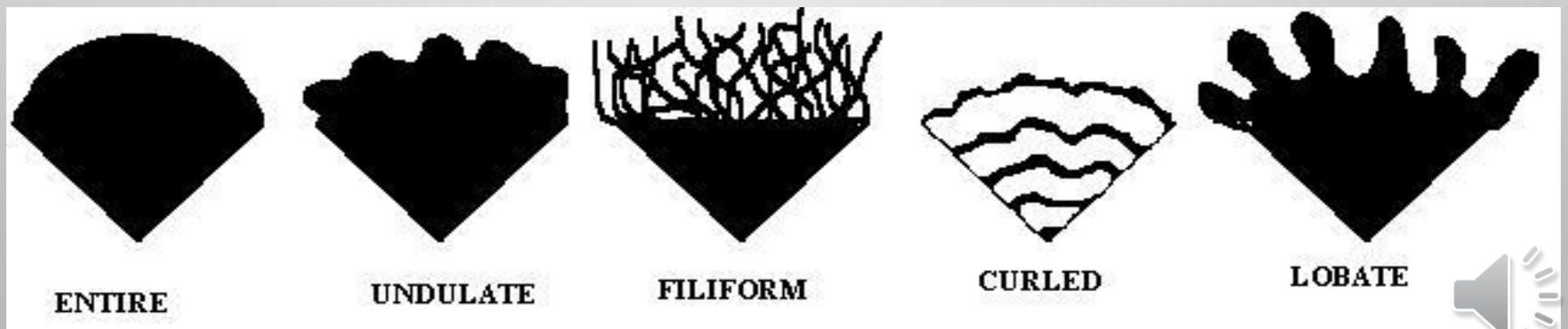
curled



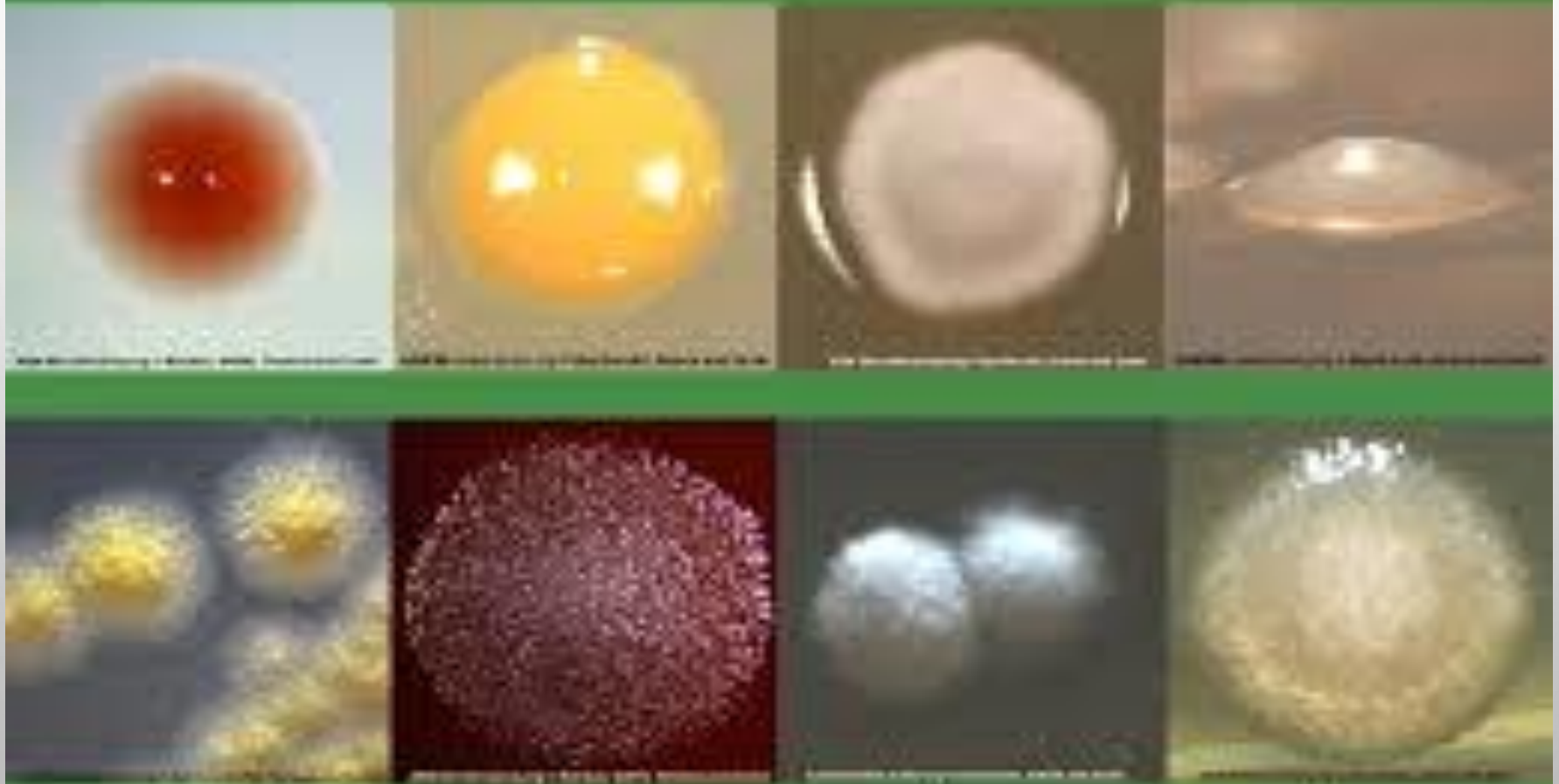
- **ELEVATION:**



- **MARGIN:**



Bacterial colony morphology



PURE CULTURE TECHNIQUE

PURE CULTURE

CULTURE CONTAINING **ONLY ONE** TYPE OF ORGANISM THAT SUITABLE FOR THE STUDY OF ITS CULTURAL MORPHOLOGICAL, BIOCHEMICAL PROPERTIES.



USES OF PURE CULTURE

1. COLONIAL MORPHOLOGY
2. BIOCHEMICAL ACTIVITIES
3. SEROLOGICAL STUDIES
4. ANTIBACTERIAL SENSITIVITY
5. BACTERIAL COUNT
6. BIOLOGICAL ACTIVITIES



TECHNIQUES FOR ISOLATION OF PURE CULTURE

- STREAK PLATE METHOD.
- SPREAD PLATE METHOD.
- POUR PLATE METHOD.

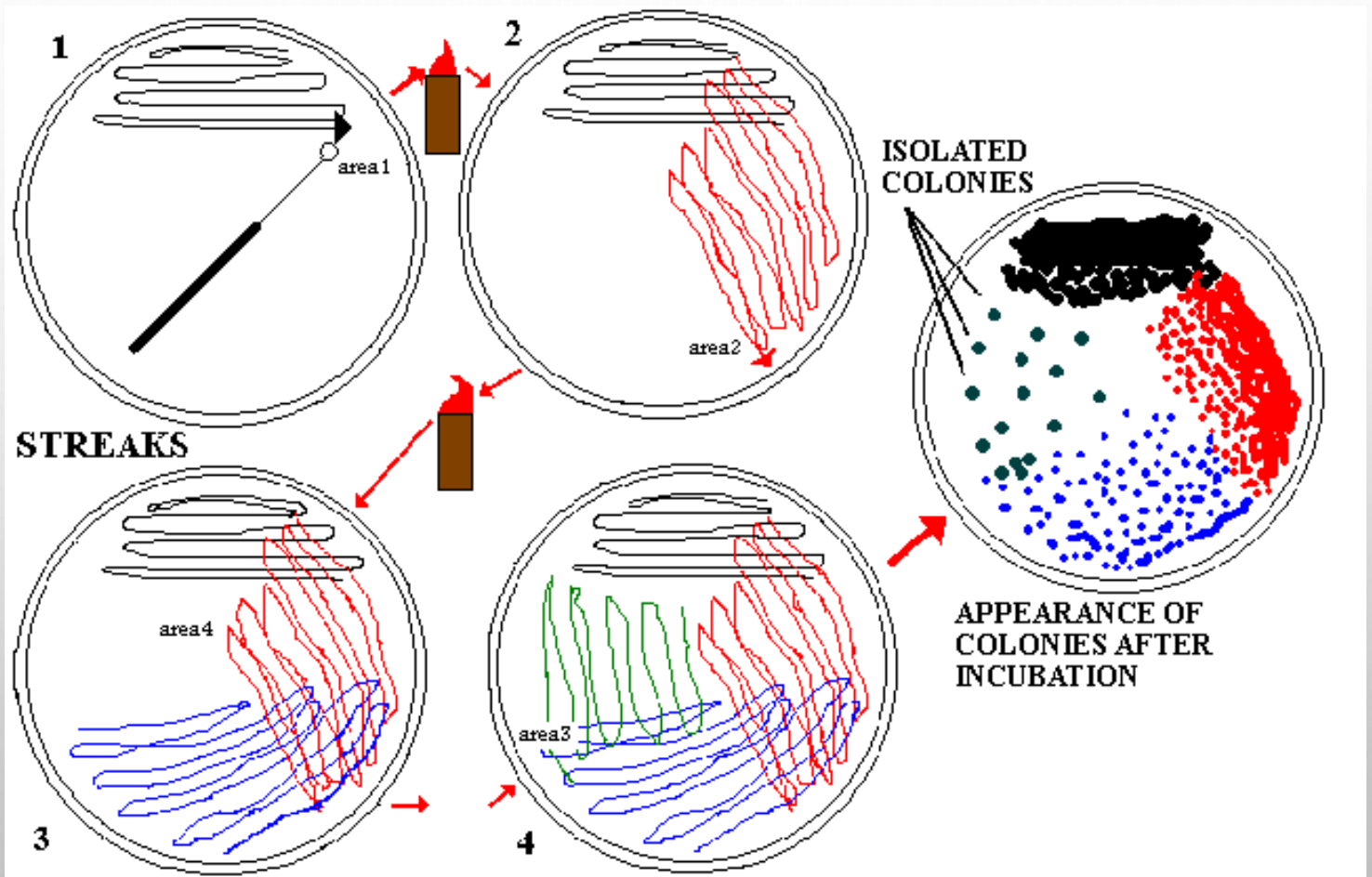


1- STREAK PLATE METHOD:-

IS A RAPID QUALITATIVE ISOLATION METHOD, IT'S A DILUTION TECHNIQUE THAT INVOLVE SPREADING A LOOPFUL OF CULTURE OVER THE SURFACE OF AN AGAR PLATE.

1. PLACE A LOOPFUL OF CULTURE ON AGAR, AND STREAK TO AREA 1.
2. RE FLAME AND COOL THE LOOP, THEN STREAK TO THE AREA 2.
3. RE FLAME AND COOL THE LOOP , THEN STREAK IN THE SAME MANNER TO THE AREA 3.
4. WITH OUT FLAMING THE LOOP, AND STREAK FROM ONE AREA TO ACROSS AREA 4.





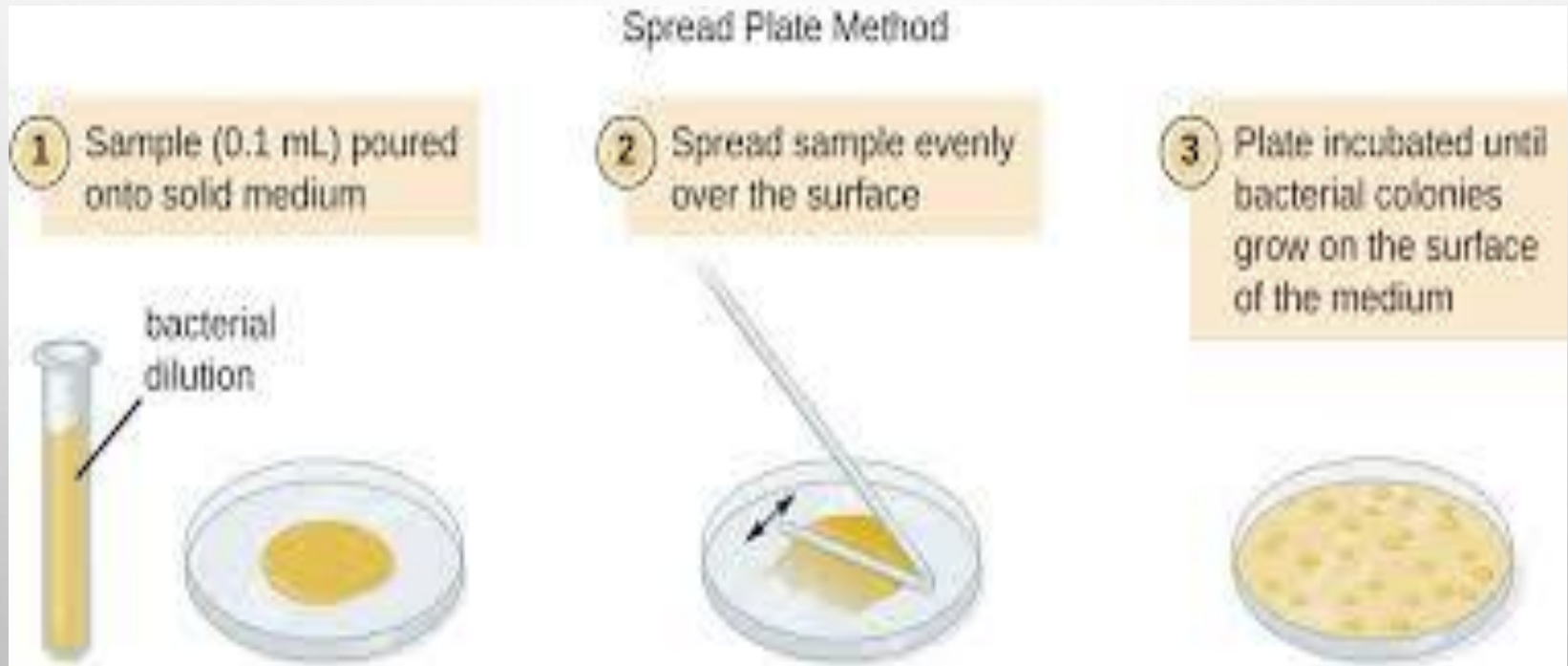


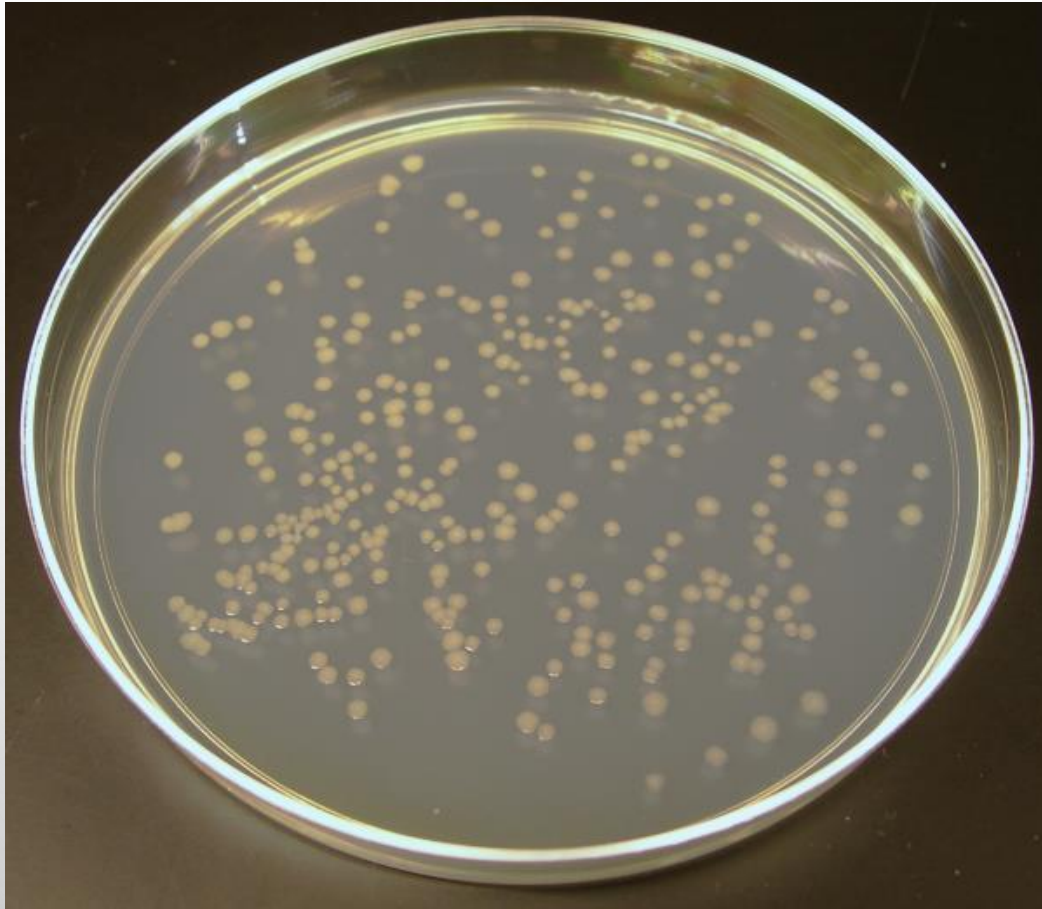
STREAK PLATE METHOD



2- SPREAD PLATE METHOD:-

LIQUID CULTURES ARE SPREAD ON THE AGAR SURFACE USING A DEVICE THAT LOOKS MORE OR LESS LIKE A HOCKEY STICK (L- SHAPE).



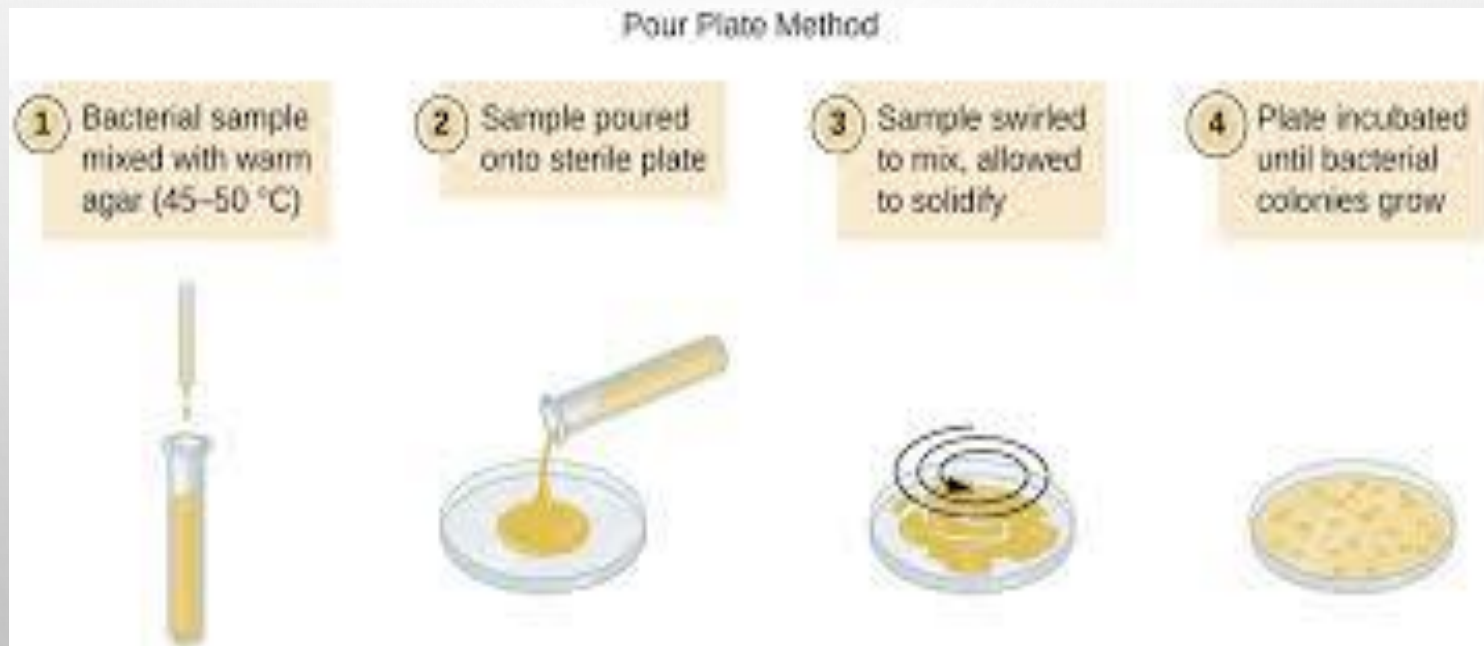


SPREAD PLATE METHOD



3- POUR PLATE METHOD:-

ALSO SOMETIMES CALLED THE **LOOP DILUTION METHOD**, INVOLVES THE SUCCESSIVE TRANSFER (SERIAL DILUTION) OF BACTERIA FROM THE ORIGINAL CULTURE TO A SERIES OF TUBES OF LIQUEFIED AGAR.



THANK YOU



• *Recap*

- KNOW WHAT IS BACTERIAL COLONY.
- KNOW THE COLONY MORPHOLOGY PROPERTIES.
- KNOW WHAT PURE CULTURE IS.
- KNOW HOW TO PREPARE PURE CULTURE USING DIFFERENT PURE CULTURE TECHNIQUES.

