

Step 1: Handling the test material obtained from a patient. Aspects of bacterial growth in liquid media: o Diffuse turbidity o Near-bottom and sidewall growth in a clear medium o Surface film formation o Cotton ball-like growth Aspects of bacterial growth in semi-liquid media: o Diffuse growth around the stab-inoculation site (motile bacteria) o Growth along the way of stab inoculation (non-motile bacteria) o Formation of gas bubbles Aspects of bacterial growth on solid media: o Growth as individual colonies o Growth as a biofilm Microbial culture properties: 1. The saccharolytic activity (ability to break down sugars) and proteolytic activity (ability to break down proteins) are studied. To study the saccharolytic enzymes a pure bacterial culture is inoculated in Hiss medium. Preliminary microscopic examination of the smear is performed using the Gram staining to identify microbial genus present in the test material. Examine the pattern of the bacterial culture growth on the agar slant and confirm the colony purity by microscopy (Gram staining). As the colonies are typical of each bacterial species, they are an important diagnostic aspect that enables to identify the bacterial genus and species. Examination of the culture properties of isolated bacteria and description of the colony structure. Step 3: There are three main methods for the determination of microbial species (identification): 1. Inoculation of the test material on the culture medium using the streak plate method. Colony size is determined by its diameter (large colonies -- over 4 mm in diameter, medium colonies -- 2-4 mm, small colonies -- 1-2 mm, pin-point colonies -- less than 1 mm). Colony shape -- round, amoeboid, root-shaped, etc. Degree of transparency -- opaque, clear. 2. 3. 4.