

Bacterial Colony Characters: Pitting Colonies

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Physiological and biological properties expressed by microorganisms form the basis for their identification. Among the various physiological characters shown by the bacteria the colony morphology assumes significance. Swarming type colonies (*Proteus* spp), corroding type colonies (*Eikenella corrodens*, *Neisseria catarrhalis*, *Moraxella* spp) and some bacteria like *Micrococcus* spp, some variants of *Staphylococcus* spp, *Streptococcus pneumoniae* and *Neisseria meningitidis* form colonies which show mild depressions on agar surface [1]. Many other bacteria show colour colonies indicating pigment production (*Serratia marscecens*-orange-red, *Staphylococcus aureus*-golden yellow, *Pseudomonas aeruginosa*-green). Bacteria also demonstrate other special characters including different types of motility (darting-Vibrio cholera, tumbling motility-*Escherichia coli*, gliding motility-*Myxococcus xanthus*) [2]. Another significant physiological expression of bacteria and some other microorganisms is their ability to produce bio-films. Bio-films are formed by bacteria to attach themselves to abiotic surfaces (prosthetic devices) [3]. Quorum sensing molecules are another type of bacterial expression which facilitates them to understand better their surrounding environment and facilitate genetic changes when required [4,5]. Clinical microbiological laboratories are required to identify most of these bacterial properties which may be related to their virulence and disease producing capabilities. Appearance of bacteria showing pitting colonies on the agar surface was associated with the presence of type IV pili (*tfp*), which are recognized as determinants of colonization and infection. *Dichelobacter nodosus* and *Moraxella bovis* show pitting colonies resulting from the binding of agar polysaccharides to *tfp* and that the physical interaction of the *tfp* with the agar may be responsible for the agar pitting phenotype (Figure 1) [6]. Many of these physical and biological properties of microorganisms are self-regulated and are formed as a result of interaction with environment which is termed as stigmergy [7].



Figure 1: Bacteria showing pitting colonies on the agar surface.

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