DEPARTMENT OF BOTANY
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B.Sc. PART I SUB/GEN
Theory.

CORE CONCEPT OF
Group-A, Microbiology.

Cell-Structure — Teichoic acids have been reported from Gram +ve bacteria. Cellulose and chitin are absent. Plasma membrane is of eukaryotic type. The cytoplasm lacks membrane bound organelles like - mitochondria endoplasmic reticulum, chloroplast etc. The ribosomes are of 70S type and a bacterial cell on an average contains about 10,000 ribosomes found free in the cytoplasm. Ribosomes found in the groups are called polyribosomes or polysomes. Infoldings of cell membrane into the cytoplasm are mesosomes which play an important role in the initiation of bacterial DNA replication and Septum formation during cell division. Presence of lamellar structures called chromatophores are known in the photosynthetic pigments bacteriochlorophyll or bacterioviridia.

The nucleus of bacterial cell is termed as nucleoid or chromatin body, because it lacks nuclear membrane and nucleolus. The genetic material occurs in the form of a single, two stranded circular DNA which lacks histone protein. Extra-chromosomal DNA called F factor or episome or plasmid are known to occur in some bacteria. It is capable of autonomous replication. The bacteria processing F-factor are called F+ (male) while those devoid of it are called F- (Female).

Gram staining

The method for staining of bacteria was developed by a Danish physician christian Gram in the year 1884. The gram stain consists of crystal violet made alkaline by KOH and mixed with 0.5% Iodine soln. The bacteria that retain the Gram stain after alcohal treatment are called Gram +ve while those that lose the stain are called Gram -ve.

The Gram +ve and Gram -ve bacteria differ in the chemical composition of the cell wall.