



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Coimbatore – 35

DEPARTMENT OF BIOMEDICAL ENGINEERING



Nucleotides – Purines and Pyrimidines :

Nucleic acids are the polymers of nucleotides. Nucleotides are made of three components:

1. 5-carbon sugar
2. Nitrogenous base
3. Phosphate groups

Structure of nucleic acids:

Sugar unit:

If the sugar unit present in the nucleic acid is a ribose, then the polymer is called ribonucleic acid (RNA) and if the sugar is deoxyribose, then the polymer is deoxyribonucleic acid (DNA).

Nitrogen base:

Nucleic acids contain purine and pyrimidine bases. They are Adenine (A), Guanine (G), Cytosine (C), Thymine (T) and uracil (U).

Purine bases

Adenine (A), Guanine (G)

Pyrimidine bases

Cytosine (C)

Thymine (T)

Uracil (U)



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Phosphate group:

In nucleic acids, sugar unit and nitrogenous base can combine to form a nucleoside, these nucleosides combine with a phosphate to form a nucleotide, which in turn polymerises to form nucleic acids.

[PENTOSE SUGAR] + [PURINE] or [PYRIMIDINE BASE]



{NUCLEOSIDE} + [PHOSPHATE]



NUCLEOTIDE + NUCLEOTIDE + NUCLEOTIDE +.....



NUCLEIC ACID

COMPONENTS	RIBONUCLEIC ACID	DEOXYRIBONUCLEIC ACID
Acid	Phosphoric acid	Phosphoric acid
Pentose Sugar	D-ribose	D-2 deoxy ribose
Nitrogen Bases		
i. Purines	Adenine	Adenine
	Guanine	Guanine
ii. Pyrimidines	Cytosine	Cytosine
	Uracil	Thymine