UG. Semester - VI
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Nucleic Acids continued.....

NUCLEOSIDES

→ Nucleic acids contain a pentose sugar.
→ (Ribose [RNA] and Deoxyribose [DNA],
→ A nitrogen-containing heterocyclic base and a phosphate group.
→ These are bonded to each other in an ordered way.

The smaller segments of a nucleic acid chain are called Nucleosides and Nucleotides.

* Nucleosides :

The Base sugar unit in any nucleic acid chain is called a **nucleosides**
Thus, a nucleoside contains a Pentose Sugar and a nitrogen base. In a nucleoside, 1-position (N atom) of the pyrimidine base, or 9-position (N atom) of a purine base is linked to a ^1C of the sugar by a β-linkage.

- The nucleosides are named after the name of the base, attached at carbon atom number - 1 of the sugar unit.
- Thus the nucleoside consisting of the sugar ribose, and the base adenine is called Adenosine.

Depending upon the sugar present, there are two types of nucleosides.

Sugar : Ribose — Nucleoside : Ribonucleoside

sugar : Deoxyribose — Nucleoside : Deoxyribonucleoside

NUCLEOTIDES

The Base - sugar - Phosphate unit is called a nucleotide.

→ Thus a nucleotide contains all the three components of nucleic acids.

→ The Phosphate group is attached to one of the -OH groups (generally, 5C -OH) of the sugar unit of the nucleoside by an ester bond.

→ Thus nucleotides are the phosphate esters of nucleosides.

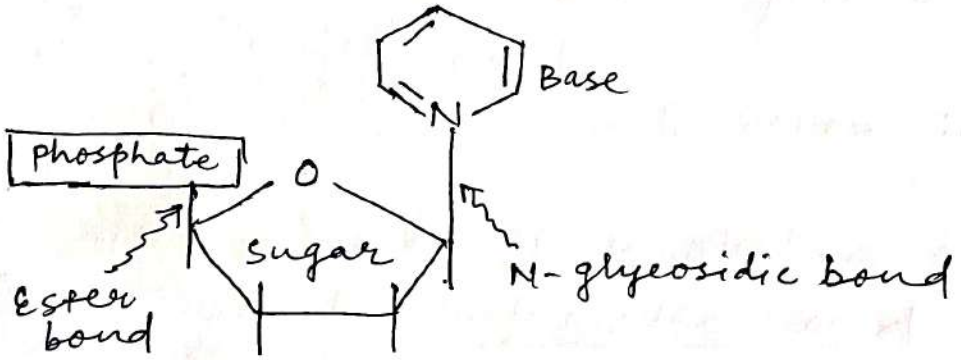
→ Nucleotides are named on the basis of sugar present in it.

Since, there are only two sugars present in nucleic acids, hence the corresponding nucleotides are :

Sugar : Ribose — Sugar : Deoxyribose

Nucleotide : Ribonucleotide, Nucleotide : Deoxyribonucleotide

Base	Notation	Nucleoside
Adenine	A	Adenosine
Guanine	G	Guanosine
cytosine	C	cytidine
Thymine	T	Thymidine
Uracil	U	Uridine



A nucleotide

The nucleotides are abbreviated by three capital letters preceded by d- in the case of deoxy series.

AMP	Adenosine monophosphate
dAMP	Deoxyadenosine monophosphate
ATP	Adenosinetriphosphate
UDP	Uridinediphosphate