

Dr. Rachana Shalini

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Dept. of Botany

Class : Deg. I (Subs)

Topic : Structure of DNA (Contd.)

Lecture No. - 99

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Molecular structure of DNA:

The most widely accepted molecular structure model of DNA is the double helix structure proposed by Watson and Crick (1953). This model is popularly known as Watson and Crick model.

According to this model, the DNA molecule consists of two helically twisted strands connected together by steps.

- Each strand consists of alternating molecules of deoxyribose (a pentose sugar) and phosphate groups.

- Each step is made up of a double ring Purine base and a single ring Pyrimidine base.

The Purine and Pyrimidine bases are connected to deoxyribose sugar molecules.

- The two strands are intertwined in clockwise direction, i.e., in a right hand helix and run in opposite directions.

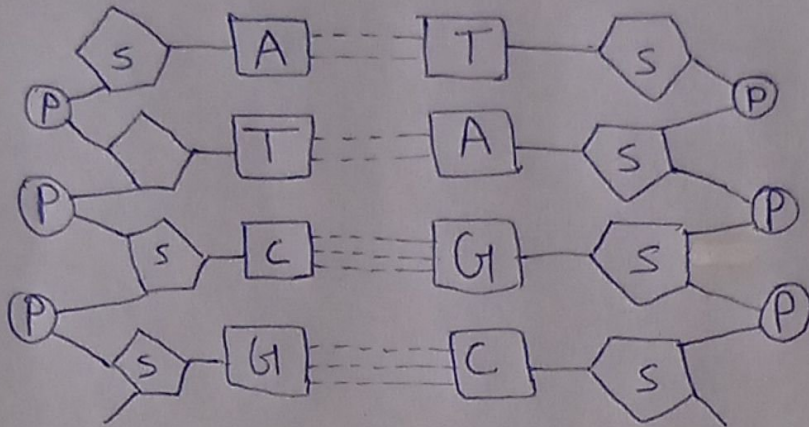
- The strand completes a turn each 3.4 \AA .

- Each nucleotide occupies 3.4 \AA . Thus, there are 10 nucleotides per turn. Each nucleotide turns 36 degree in horizontal plane.

(4)

The width of DNA molecule is 20\AA .

The twisting of the strands results in the formation of deep and shallow spiral grooves.



A = Adenine

T = Thymine

G = Guanine

C = Cytosine

S = Sugar

P = Phosphate

(Fig: Molecular structure of DNA molecule)

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