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B.Sc-I (Zool Honrs)

Paper - I B

CHROMOSOMES

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- (i) Daughter chromatids have only two granules when they are separating during anaphase.
- (ii) Their duplication occurs at some time during mitosis or meiosis.
- (iii) The chromosomes of most organisms have only one centromere and are known as monocentric chromosomes.
- (iv) Certain chromosomes are provided with two or more centromeres and are known as dicentric and polycentric chromosomes.
- (v) In some animals like Ascaris and some insects belonging to homoptera and hemiptera the centromeres remain diffused along the length of the chromosomes.
- (vi) In such cases centromere is termed diffused centromere and the chromosome is said to be polycentric.

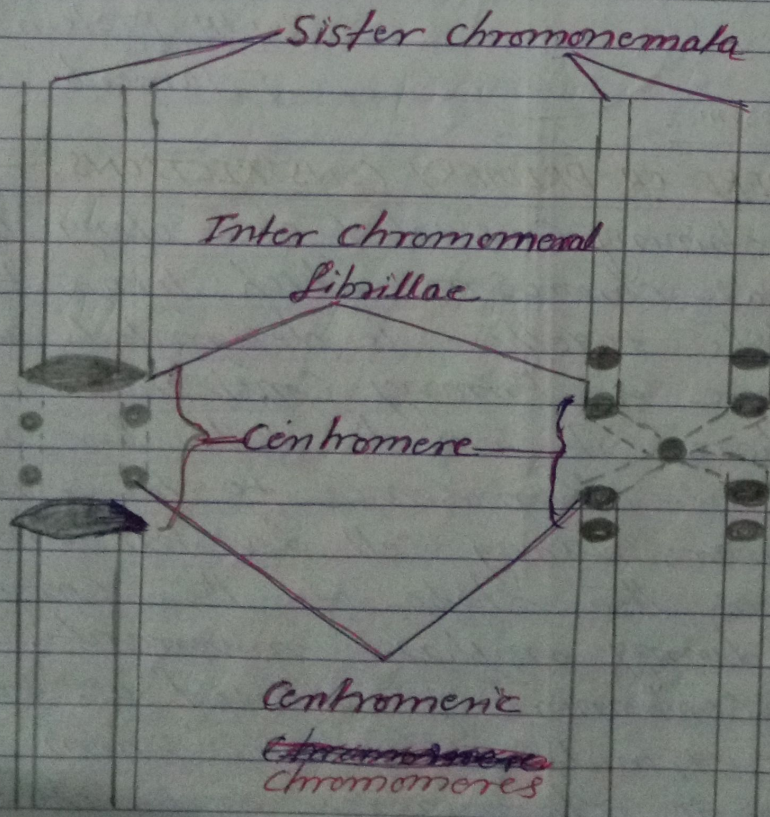


Fig: - Diagrammatic representation of centromere structure. (1)

(iv) SECONDARY CONSTRICTION OR NUCLEAR ORGANIZER : ———

- (i) A constriction in the chromosomes at any point other than the primary constriction is known as secondary constriction.
- (ii) Chromosomes can bend only at the position of primary constriction i.e. secondary constriction is unable to provide angular deviation in chromatids of the chromosomes.
- (iii) The location of the secondary constriction is constant for a particular chromosome and is, therefore, utilized in identification of chromosomes in a complex.
- (iv) Secondary constrictions represent the sites of breakage and subsequent fusion. This participates in the reorganization of nucleolus & nucleolus hence also known as nuclear organizer.
- (v) A few chromosomes are in possession of secondary constriction and these are named nuclear chromosomes.
- (vi) In human secondary constrictions are found on the long arms of 13, 14, 15, 21 and 29th chromosomes, all of acrocentrics.

(v) TELOMERES → (i) The tips of the chromosomes are called telomeres.

(ii) A chromosome breaks into two pieces the broken ends may join again but do not fuse with the telomere.

(vi) SATELLITES → The spherical body separated from the rest of the chromosome by a secondary constriction is known as satellite.