3) Monosomy (2n-1) organism lack one chromosome

(2n-1-1) double monosomics.

(2n-1-1-1) loss of three chromosome of three different pairs. (Triple monosomics)

- lack one chs, they are genetically imbalanced and therefore they are either lethal or reduce viability.
- Monosomics have been obtained in wheat, cotton, Tobacco.
- Monosomics are produced due to non-disjunction of chrosomes in meiosis or mitosis

Example: Turner syndrome (XO)

Explain with the help of Practical Notebook.

4) Nullisomy (2n-2)

Individual lack both the chromosomes of a homologous pair of chromosomes.

- It is lethal in case of diploid but can be tolerated in polyploids.

2) Tetrasomy (2n+2) particular chromosome of the haploid set is represented 4 times in a diploid chromosomal complement.

example

Tetrasomy X

female with 4 copies of X chr
total 48 chr.

- speech & learning difficulty
- Developmental delay
- Dental abnormalities
- Heart defect
- Epicanthal folds
- Hip dysplasia

Tetrasomy 18p

- Delayed development
- Hypotonia / Hypertonia
- Stiffness in muscles
- Breathing Problem, Jaundice
- Small mouth
- thin upper lip, low set ears
- seizers, vision problem
- Gastro Intestinal problem etc.

Examples :

1) Trisomics in Datura stramonium (n=12)
Blakeslee made comprehensive study on 12 different trisomics in Datura.

2) Trisomics in Drosophila
Bridge (1921)
XXY, XYY] common conditions of Trisomy in male Drosophila

3) Trisomics in Man

1. Down's Syndrome (Trisomy-21) Explain ---
2. Patau's Syndrome (Trisomy 13) Explain ---
3. Edward's Syndrome (Trisomy 18) Explain ---
4. Klinefelter's Syndrome (XXY) trisomy of sex chs. Explain ---

★ Explain these syndromes with the help of Your Practical note book (symptoms & other details)

Origin Trisomy may develop spontaneously due to nondisjunction of chromosomes during meiosis at the time of gamete formation.

Significance It is used to locate genes on specific chromosomes

Aneuploidy

Addition or loss of one or more chromosomes to the complete diploid chromosome complement of an organism.

Types :- 1. Hyperploidy
Addition of one or more chromosomes to the diploid genome
a) Trisomy (2n+1)
b) Tetrasomy (2n+2)

2. Hypoploidy
loss of one or more chromosomes of the diploid genome.
a) Monosomy (2n-1)
b) nullisomy (2n-2)

1) Trisomy
- one chr extra to the diploid genome.
- one chr is represented three times.

Types of Trisomics

Primary :- Extra chromosome is identical to its homologous.

Secondary :- Extra chromosome is an isochromosome (both arms are genetically identical)

Tertiary :- when Extra chromosome contains a part of translocation.