Dr. Prabhat Ranjan
Rajendra College
Sawan.

B.Sc. (Hons.) 2nd yr
Part I (One)
Paper. 1st-

Cytoplasmic particles in Paramoecium
Dt:- 30/5/20

(1) Kappa particles.

- It was first reported by T.M. Sonneborn (1938)
- These are rod like self duplicating Cytoplasmic nucleic acid in Paramoecia.
- A/c to T.M. Sonneborn that some races, known as Killers or Killer Strain of Paramoecium produce a poisonous substances, called Paramecin, which is lethal / fatal to other individuals called Sensitives.
- Paramecin is water soluble, diffusible, & depends for its production upon some particles located in the Cytoplasm of Paramoecium (Killer Strain).
- These particles are called Kappa particles.
- It contains DNA and RNA.
- A Killer Paramoecium may contain hundreds of kappa particles
- Extensive Study of these particles has revealed that a dominant gene (K) in the nucleus of Paramoecium is necessary for kappa particles to exist, multiply & produce Paramecin.

Function.

It helps in Cytoplasmic inheritance.

(2) mu particles.

R.W. Siegel (1952) reported another type of Killer particles in the Cytoplasm of some Paramoecium without any mu particles called "mate sensitive", then it kills the latter.

- The mu particles are also composed of nucleic acid (DNA + RNA), etc.
- These particles exist only in those Paramoecia whose Micronucleus contains atleast one dominant gene of either of two pairs of nonlinked chromosomal genes (M1 & M2)

(3) /Pi particles-/

These particles are supposed to be the Mutant-form of Kappa particles, but they do not produce any type of poisonous substances.

(4) /Lambda particles-/

These particles are reported in killer-paramoecia & said to produce some substance responsible for causing lysis or disintegration of sensitive paramoecia, i.e. which do not-possess it.