* Different isolating mechanisms and their role in evolution.

Introduction

A process which prevents free interbreeding among segregated or separated groups of a species is called isolation.

→ All the factors which divide a species into such groups which are unable to interbreed are called isolating factors or mechanisms.

→ A group of actually or potentially interbreeding natural population and that is reproductively isolated from such other groups is called species.

→ The general phenomen of prevention of gene interflow is called isolation.

→ Recently isolating mechanisms have been categorized as follows by mechan:

A) Pre-mating

(i) Geographical isolation: When individuals of the same species become separated into groups due to presence of geographical barriers like high mountains, seas, dense forests, deserts and such other natural barriers then it is called geographical isolation.

(ii) Spatial isolation : When groups of a species become separated only due to being located at sheer distance without presence of any geographical barrier, then it is called spatial isolation.

(iii) Climatic isolation : When differences in temperature, humidity, minerals and chemicals found at two places affect the metabolism and physiology of two groups of individuals of the same species, then it is called climatic isolation.

(iv) Seasonal isolation : When mating or interbreeding between populations or species is prevented due to differences in breeding season then it is called seasonal isolation.

(v) Habitat or environmental or ecological isolation : Prevention of interbreeding due to development of particular habits for fulfilling its physiological requirements is called habitat or environmental or ecological isolation.

(vi) Reproductive or mechanical isolation :- In some animals genitalia are composed on the lock and key hypothesis. When interbreeding is prevented due to differences in complex structure of genitalia then it is called reproductive or mechanical isolation.

(vii) Psychological or ethological or sexual isolation: Occurrence of selective mating on the basis of size, colour, certain type of plumage, particular type of habits is called ethological isolation.

(viii) Physiological isolation or prevention of fertilization: When fertilization is not possible after occurrence of mating then it is called physiological isolation. This is seen in case of Drosophila.