A study has been made on the genetic mechanism of adaptation in the two cultivated species of jute viz. *Corchorus capsularis* and *C. olitorius* approaching the problem from the angles of adaptability to varying locational environments and sowing time fluctuations. Further, with a view to incorporating stability characteristics in a high yielding genetic system, some intraspecific crosses have been made and genetic parameters of different character have been quantitatively evaluated.

The different experiments were carried out during the years 1973-77.

The first set of experiments was on cause and effect relationship involving 24 *capsularis* and 34 *olitorius* strains. The second set of experiments was on adaptability evaluation under different locational environments involving three different locations and the same number of *capsularis* and *olitorius* strains as in the first set. The third set of experiments was also on adaptability evaluation but under different sowing time environments. For this purpose, all the year round sowings were done at an interval of 15 days in both the species. There were five strains in each species for this study. The fourth set of experiments was concerned with inheritance of quantitative characters in $F_1$ and $F_2$ generations of four crosses in each of the two species.

The results of cause and effect relationship study, through correlations and path analysis, revealed once again that in both the species plant height and basal diameter had significant and positive
correlations with as well as direct positive effects on fibre yield.

The adaptability studies under different locational environments enabled classification of *G. capsularis* genotypes into five adaptive specific groups and of *G. olitorius* into six such groups. The high yielding strains of both the species could be classified into three adaptive groups; while the low yielding strains of *G. capsularis* could be placed into two adaptive groups, whereas those of *G. olitorius* could be located in three groups. In each species a large group of strains had low yield with high values of regression coefficient, the latter being indicative of unsatisfactory adaptability.

Considering the evaluated results of regression coefficient and deviation from regression, it has been suggested that the strains JRC 1108 and JRC 4444 in *G. capsularis* and KT 1, JRO 514 and JRO 632 in *G. olitorius*, all incidentally possessing high mean fibre yield, may be considered for general cultivation under wide range of environmental conditions.

Amongst the different characters contributing to agronomic merit in jute, plant height and basal diameter in both the species showed promise of positive roles in manifestations of plasticity and stability and thus resolving the problem of adaptability for fibre yield. However, days to 50% flowering did not reveal any such role. It has been, therefore, suggested that adaptability for high fibre yield may not necessarily entail longer crop duration in jute,
The broad trends from adaptability studies under different sowing time environments revealed that among *olitorius* strains mid-April sowing was conducive to higher yield and better quality of fibre for JRO 620 and Chinsurah Green; but Sudan Green, KT 1 and JRO 878 may be sown even earlier in March without compromising quality and yield of fibre. On the other hand, wider adaptability was shown by all the *capsularis* strains to a greater range of sowing time i.e. mid-March to mid-May. Plant height and basal diameter had similar relational impact on adaptability for high fibre yield in both the species under different sowing time environments as found under different locational environments.

From the results of these two sets of adaptability investigations, it has been argued that there exists greater magnitude of genetic variability in regard to mode of adaptation in *C. capsularis* than in *C. olitorius*.

Selecting parents mainly from two adaptive groups viz. "high yielder with below average stability" and "low yielder with above average stability", hybridization work was undertaken to evaluate the various genetic parameters in F$_2$ generation. The results revealed that in *C. capsularis* JRC 212 x JRC 412 and JRC 7447 x JRC 212 had high values of fibre yield and possibility of selection of high yielding genotypes on the basis of plant height. Such promise of selection towards higher fibre yield in *C. olitorius* was shown mainly by JRO 632 x JRO 620 and Chinsurah Green x JRO 620 crosses. Plant height was found to be a more reliable basis for yield in the former cross,
whereas in the latter cross basal diameter gained in importance.

High heritability values for days to 50% flowering in the cross combinations of both the species revealed possibility of incorporation of earliness characteristic while selecting for high fibre yield.