Chapter **5**

Conclusion

The present investigation was carried out during the year 2014-15 and 2015-16 for studying the yield and quality parameters in 12 germplasms at Horticultural Research Station, Mandouri, Faculty of Horticulture, Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal.

Assemblage, evaluation and characterization of coriander germplasm as par documented descriptors.

Six qualitative characters namely, leaf colour, leaf lustre, basal lobing, leaf blade shape, stem colour and seed shape have been recorded in all the twelve coriander germplasm. So far as quantitative characters are concern, wide range variation was evident in days to flowering, days to maturity, plant height, number of basal leaves, primary branches, secondary branches, umbels per plant, umbellets per umbel, number of seeds per umbel, oleoresin content, essential oil content, test weight and seed yield per plant. Four genotypes namely, Pant Haritma, NRCS A.Cr-1, West Bengal collection-2 and Arka Isha performed well so far as the seed yield per plant, essential oil and oleoresin are concerned.

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Determination of genetic variability parameters for important growth and seed characters influencing yield, their interrelationship and their direct and indirect effect on yield.

Different components for genetic variability in the 12 germplasm for eleven characters namely days to flowering, days to maturity, plant height, number of basal leaves, primary branch, secondary branch, umbels per plant, umbellets per umbel, number of seeds/umbel, test weight and seed yield per plant.

Almost all character show high heritability. Days to maturity (99.6%) show the highest heritability followed by seed yield per plant (98.42%). Seed yield per plant, Number of seeds per umbel, number of basal leaves, primary branches, secondary branches and plant height were characterised by high PCV, GCV, heritability and genetic advance indicating prevalence of additive gene action which offer good scope for further improvement.

Phenotypic and genotypic correlation co-efficient, in general, agreed very closely. However, the genotypic correlations were higher than phenotypic correlations in most of the cases. Out of eleven characters studied, days to flowering, days to maturity, plant height, number of basal leaves, primary branches, secondary branches, umbel per plant, umbellets per umbel, number of seeds per umbel show significant positive correlation co-efficient with seed yield per plant. Besides, test weight showed positive but non significant correlation with seed yield per plant.

Among the eleven yield component traits, days to maturity, plant height, primary branch, secondary branch, umbels per plant, number of seeds per umbel and test weight showed highly positive direct effect on seed yield per plant. This was the main cause of their positive association, although days to flowering, number of basal leaves, umbellets per umbel showed negative association with seed yield per plant. The direct selection for these

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characters could be beneficial for yield improvement of coriander seed since these characters also showed positive correlation with seed yield per plant.

Genetic divergence through multivariate analysis

The present study aimed at analyzing genetic divergence of 12 genotypes employing eleven important quantitative characters. Genotypes were grouped into 5 clusters. The comparison of cluster means for differentcharacters indicated considerable differences between clusters for all the characters. Though average divergence of the genotypes and cluster constellation differed with the environment yet the set of characters contributed maximum to differentiate the varietal population emerged consistently and the characters were seed yield, test weight, days to maturity and number of basal leaves. It can be concluded that geographical diversity was not adequate as an index of genetic diversity. Keeping the genetic diversity and *per se* performance for yield and important yield components, crossing of genotypes falling under Gr-5 and Gr-3 is expected to produce heterotic hybrids.

On the basis of mean performance of 12 genotypes, it may be concluded that four genotypes namely, Pant Haritma, NRCS A.Cr-1., West Bengal collection-2 and Arka Isha are most promising for seed yield per plant, essential oil and oleoresin.The superior characters as tested by the PCV, GCV, Heritability %, GA %, CV, phenotypic correlation coefficient, genotypic correlation coefficient, path analysis and multivariate analysis are to be taken into consideration for selection and improvement

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FUTURE RESEARCH

Based on this empirical research, the future interventions and enquiries can be driven in the following directions:

- Evaluation and characterization of more number of coriander germplasm to identify high yielding coriander and the one containing more essential oil and oleoresin as an index to be regarded as spice coriander
- Study on the genetic architechture of all important characters of coriander germplasm
- Identification of different species through morpho-physiological characterization and molecular marker.
- Exploitation of heterosis by utilization of parents having diverse genetic base.
- Repeated location specific research with locally adapted germplasms for precision of the result and effective conclusion.
- To maintain the genetic inventory and its subsequent standardization agene bank needs to be created to organise future research and its application.
- To foster advance researches on coriander, modern laboratory facilities and logistics need to be ushered to extracts its clinical, ecological, biochemical and genetic properties, which subsequently be a precursor for state of the art researches.
- The community gene bank through farmers participatory research and ITKs can go a long way to integrate coriander with the existing cropping pattern both by its operational and ecological suitability. The gene bank itself shall offer dedicated access to enterprising farmers for its subsequent socialization.

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