Genetic studies on some ornamental plants

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This investigation aimed to study the genetic behavior of some characters of parents and their F1 and F2 generations in four Viola species crosses are made between the four Viola species : Viola lutea, Viola pedata, Viola riviniana and Viola tricolor. The data were recrded at probiate time in the follwing character :Plant height , Time for first flower, No. of fruits / plant , No. of seeds/ fruit , No. of seeds / plant and weight of 1000 seed were studied in this study. Results could summarized as follows:A- Inheritance of quantitative characters:1-Parents, F1 s and F2 s differed significantly for most characters studied, showing high genetic variability among the studied materials.2-The additive gene effect was observed to be more effective than the dominance gene effect for all characters .3-There were a partial of dominance for all characters .4-The calculated dominance was equal to the predictive. dominance.5-The heritability was significant in all characters in F1 and highly significant inF2.6-Negative and positive alleles are unequal distributed among the stydied parents , since (H1/D 1/2) values were less than 0.25.B- Seed protein electrophoresis :The results proved presence of the differentiation between the parents and F1 s in bands pattern .1-The results showed that band number 1 observed in the cross (Viola pedata x Viola tricolor) that mean that this trait is transmitted to it from the parent Viola pedata and not from the other parent , also the cross (Viola riviniana x Viola pedata) has this pattern from the two parents.4- Band number 4 is observed in the parent Viola lutea but it didn't transmitted to any of its offspring.3-It was noted that band number 6 didn't transmitted from the parent Viola lutea except in the cross (Viola lutea x Viola tricolor) and it could transmitted from the another parent.4-Analysis of seed protein electrophoresis indicated that band number 7 transmitted from the parent Viola tricolor to the cross (Viola lutea x Viola lutea).5-Band number 8 didn't transmitted from the parent although the both have this trait in the cross (Viola lutea x Viola pedata) also in the cross (Viola lutea x Viola tricolor).6-It was noted that the band number 9 is present in all cross except the crosses (Viola pedata x Viola tricolor) and (Viola pedata x Viola lutea) it may be present the parent Viola,pedata.7-It was noted that band number 10 didn't transmitted to the cross (Viola tricolor x Viola riviniana) although the two parents have this trait.C - Cytological studies:1-The total length of the chromosomes as an average of 3 cells in Viola lutea ranged from 47.95 to 49.9 1.t , in Viola pedata from 56.6to 57.45 1.1 , Viola riviniana from 59.6 to 60.05 11, and Viola tricolor from 35.7 to 45.191.1.2-The average length of chromosomes in Viola lutea ranged from 7 to 1.74 II , in Viola pedata ranged from 6.05 to 2.7 p , Viola riviniana ranged from7.63 to 1.83 p. and Viola tricolor ranged from 4.28 to 0.78 p.3-The chromosome type according to centromere position was in Viola lutea for the chromosomes 1,2,3 and 6 metacentric and the rest of chromosomes were sub metacentric .4-In Viola pedata all chromosomes were metacentric except, chromosomes number 6 and 7 were sub metacentric.5-In Viola riviniana all the chromosomes were metacentric' except, the last chromosome.6-In Viola tricolor all the chromosomes were metacentric except, the last two chromosomes.