Amplified Fragment Length Polymorphism reveal genomic changes in neo-autotetraploid of *Vigna radiata* (L) Wilczek and *Vigna mungo* (L) Hepper

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Polyploidy is a major driving force of plant evolution and is widespread in higher plants. The phenomenon of autopolyploidy, like allopolyploidy, is found to be common in plants, more than traditionally assumed. However, it is poorly understood and receives little attention as compared to allopolyploidy. To shed some light on the consequences of autopolyploidy, we successfully induced autotetraploidy in *Vigna radiata* (L) Wilczek and *Vigna mungo* (L) Hepper using colchicine and analyzed them through different generations (C_0, C_1 and C_2) besides monitoring their lineages to determine the genomic changes, if any, using amplified fragment length polymorphism (AFLP).

Although the neo-polyploids developed were not expected to exhibit genomic changes, however, noticeable genomic variations were discovered which were manifested in the progenies. Our preliminary data indicate that genomic changes were observed in both coding and non-coding regions of the autopolyploid genome. The AFLP marker revealed genome changes through different generations, wherein a generation may be more affected by polyploidy than the other. The autopolyploids were found to neither experience large scale genome restructuring nor extensive re-organization during the C_0 generation following genome doubling. However, these processes were more evident in C_1 and C_2 generations. Genetic discrepancy among the synthetic polyploids was also found from tracing and comparing the variation in their genome where such changes may help in the stabilization of the genomes of the neo-autopolyploids. Our results show polyploidy resulting in genetic diversity on a small scale, in short period of time. However, the range and quantum of impact of ploidy changes at molecular lever (of genomic DNA) are yet to be ascertained.

Recent Publications

1.Shamurailatpam, A., **Wahlang, D.R**., Madhavan, L., Yadav, S.R., Bhat, K.V and **Rao, S.R.** 2016. Further observations on chromosome diversity analysis in wild species of Vigna from India. Nucleus 58: 225. doi:10.1007/s13237-016-0157-4

2. Lamo, J.M., **Wahlang, D.R.** and **Rao, S.R.** 2016. Comparative Analysis of Heterochromatin Distribution Pattern in Wild and Cultivated Species of Curcuma L. Med Aromat Plants S3:006. doi:10.4172/2167-0412.S3-006



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