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Editorial on Understanding RAPD, RFLP, AFLP

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Editorial

Some of the modern and most useful genetic molecular markers obtained in the recent era are RAPD, RFLP, and AFLP. All these DNA molecules are amplified after being cut by the restriction enzyme present in the restriction site. The DNA molecules thus cut are used to decode several pieces of information starting from parental linkage to finding a criminal. Just like with time science is evolving as a whole so as the biology of markers these markers are a boon to modern science and thus they are the shining stone for research in the field of molecular markers.

RFLP is also known as Restriction Fragment Length Polymorphism functions on the common principle of cutting out specific restriction sites of DNA with restriction enzymes like Hund1, Bahm1. The DNA thus separated from the long strand of DNA is then run on the agarose gel. Once the DNA runs different bands may be observed after the gel has stopped running. This different position of the band helps us to understand the difference in parental linkage or a different source of the sample and also mutations that often lead to cancer. RAPD is also known as Random Amplification of Polymorphic DNA. This type of molecular marker also follows a similar kind of pattern through the step of amplification that occurs here through PCR. The process of PCR requires primers and thus, the primers are provided from outside randomly into the PCR. Once the primer is attached with DNA random amplification of DNA starts occurring and this random amplification for the DNA is repeated several times and finally, the results are loaded into the system. The results thus obtained help us in the pre-selection of breeding in the plant. AFLP, signifying Amplified Fragment Length Polymorphism. In AFLP the same basic process of cutting the DNA with restriction enzyme is followed, after the basic, step of fragmentation is completed adaptors are attached to these fragments. The adaptors are added so that the specific end of the DNA interacts with the target site. Finally, primers are added with the adaptors for amplification by PCR and are then run on the gel. Thus, by observing the gel we understanding the genetic make-up of the DNA.

Thus it was observed that RAPD, RFLP, and AFLP are excellent molecular markers working with almost the same basic principle but with certain differences in their role. The most striking difference was that in the case of RAPD, there is no need to know about the sequence of the DNA but in the case of RFLP and AFLP, there is an absolute necessity to know about the sequence. It was also observed that AFLP is much more efficient than RAPD and RFLP.

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