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Examine - Molecular Marker Applications in Biodiversity Conservation Status for Genetic Variety Analysis

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Introduction

According to the findings of the study, biodiversity is essential for human well-being, and its conservation is a pressing issue around the world at the moment. In reality, genetic diversity analysis, individual organism identification, genetic integrity monitoring, and the classification and evaluation of biological resources are all prerequisites for biodiversity conservation and management. Within populations of species, genetic diversity refers to the variation of genetic information included in all of the individual plants, animals, and microbes. The most essential method for assessing genetic variation among individuals and selecting what to conserve and where to conserve is genetic diversity analysis. Characterization is the process of evaluating genetic diversity within collections in relation to the total genetic diversity accessible for each species. Classical Marker Classification and Molecular Markers are two types of markers [1]. Most biodiversity conservation operations, including identification and genetic diversity analysis, characterization of biological diversity and genetic integrity monitoring, and illicit wildlife trafficking, use these markers. Identification of organisms, genetic diversity study (analysis), characterization of diversity, genetic integrity monitoring for conserved seeds in gene banks, and illicit wildlife trafficking all require molecular markers. As a conclusion, the main applications, classifications, and types of molecular markers in biodiversity are discussed, as well as the main molecular marker types such as AFLP, RFLP, RAPD, and SSR, as well as their specific applications in biodiversity conservation and management such as genetic diversity analysis and germplasm characterization.

Description

"The variability among living organisms from all sources, including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part," according to the Convention on Biological Diversity [2]. "This includes diversity within species, between species, and among ecosystems" (CBD 1992). Biodiversity also includes genetic changes within each species, such as between crop kinds and cattle breeds. The uniqueness of each individual and species is determined by chromosomes, genes, and DNA, the building blocks of life [3]. Biodiversity is extremely important for human well-being because it promotes the aesthetic value of the natural environment, contributes to our material well-being through utilitarian values, maintains environmental integrity by maintaining CO_2/O_2 balance, regulates biochemical cycles, absorbs and breaks down pollutants and waste materials through decomposition, determines and regulates the natural world climate, and provides protective services through acclimatisation. As a result, preserving each component of biological variety is critical [4].

Biodiversity conservation refers to measures for preserving life on Earth in all of its forms while also ensuring that natural ecosystems remain functional and healthy. This encompasses the protection, maintenance, long-term usage, rehabilitation, and promotion of biological diversity components. The examination and appraisal of each component that makes up biological diversity is required for its protection. Several methods for quantifying biological resources have been developed, including genetic variation analysis, identification of each organism, population structure, and characterization and evaluation of biodiversity and its components (IPGR, 2003). These methods not only allow breeders to identify the best traits contained in biological resources, which can then be used to meet the demands of an ever-increasing global population [5]. As a result, such research is vital not just for biodiversity conservation and planning, but also for sustainable benefit sharing.

Conclusion

Molecular markers and their knowledge are required for the analysis of genetic diversity, the identification of individual organisms, and the characterization and appraisal of biological resources. Molecular markers are DNA-based indicators that can be used to estimate genetic diversity and conservation of biodiversity. A molecular marker is a DNA sequence with a known position on the chromosome that can be used to track the inheritance of biological structure. Polymorphisms in DNA are used to build molecular markers, and information gained from biological diversity can be used to quantify relationships between organisms and other genetic diversity studies. As a result, molecular markers are critical for biodiversity conservation. As a result, the purpose of this study was to explore the classification of various molecular markers, as well as the application of the major molecular marker in biodiversity conservation, genetic diversity analysis methods, composition, risk status, management, and long-term use.

References

1. Kong, Mengqi, Zihan Li, Jianguo Wu, and Jie Hu, et al. “A wearable microfluidic device for rapid detection of HIV-1 DNA using recombinase polymerase amplification.” *Talanta* 205 (2019): 120155.
2. Cate, David M., Wijitar Dungchai, Josephine C. Cunningham, and John Volckens. “Simple, distance-based measurement for paper analytical devices.” *Lab Chip* 13 (2013): 2397.
3. Hongwarittorrn, Irin, Nuntaree Chaichanawongsaroj, and Wanida Laiwattanapaisal. “Semi-quantitative visual detection of loop mediated isothermal amplification (LAMP)-generated DNA by distance-based measurement on a paper device.” *Talanta* 175 (2017): 135–142.
4. Alghamdi, Salem S., Altaf M. Khan, Megahed H. Ammar, and Sulieman A. Al-Faifi, et al. "Phenological, nutritional and molecular diversity assessment among 35 introduced lentil (Lens culinaris Medik.) genotypes grown in Saudi Arabia." *Int Molecular Sci* 15 (2014): 277-295.
5. Zhang, Yonghao, and Hui-Rong Jiang. “A review on continuous-flow microfluidic PCR in droplets: Advances, challenges and future.” *Anal Chim Acta* 914 (2016): e16.

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