

Genetic engineering for sustainable improvement of oil palm

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Oil palm is the most productive vegetable oil crop that can be used either as edible foodstuff or industrial feedstock. Systematic progress in conventional breeding, application of good agriculture practices among others has allowed the oil palm industry to obtain a solid footing in South East Asia, particularly in Malaysia and Indonesia. However, to remain competitive in the long term, diversification of research into profitable areas, such as palm biotechnology is a necessity. Biotechnology offers tremendous opportunities for further improvement of oil palm yields. The idea is to deploy appropriate biotechnology tools to obtain highest yielding trees, with good quality oil and minimal environmental footprint. In this regard, MPOB made a major breakthrough in sequencing the genome of oil palm, which allowed the identification of genes influencing important agronomic traits. Conversion of these discoveries into molecular diagnostic assays will also help improve breeding efficiency. Apart from conventional breeding, MPOB also has an active tissue culture program to clone the highest yielding palms. Uniformity of planting materials via cloning, offers the opportunity to increase yields up to 30%. However, abnormalities observed in a small percentage of the clones, has restricted large scale commercialization. Nonetheless, it has opened up opportunities for deciphering the epigenome of oil palm to understand molecular basis of clonal abnormality. Developing transgenic technologies has also been an important component in MPOB's R&D efforts to further diversify the use of palm oil. The main focus has been to develop high oleate oil palm for the high value oleochemical industry. Biotechnology efforts towards increasing oil palm production will contribute to world food security.

Biography

Ahmad Parveez Ghulam Kadir is the Director of Advanced Biotechnology and Breeding Centre at the Malaysian Palm Oil Board (MPOB). He has completed his PhD on Plant Genetic Engineering at the Universiti Putra Malaysia under Asian Development Bank's Scholarship. He was also appointed by the Honorable Minister of Natural Resources and Environment of Malaysia to Chair the Genetic Modification Advisory Committee (GMAC) under the National Biosafety Board from 25th May 2010 to 24th May 2016.

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