

Retrospect and Prospect in Plant Tissue Culture-Based Biotechnology

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G. Haberlandt initiated plant cell and tissue culture in 1992. His historic publication on "Cultuversuche mit isolierten Pflanzenzellen" attempted to demonstrate the totipotency of plant cells. Although his revolutionary trials failed, his work has given a great impact on plant biology. Discovery of plant hormones, plant regeneration from a single cell or protoplast, somatic embryogenesis, and production of artificial seeds are some of his vision and implications in the publication that have been realized so far.

Plant biotechnology comprises two key technologies, plant cell and tissue culture and recombinant DNA. Recently, recombinant DNA technology has been extended to genomics, proteomics, and metabolomics. Plant tissue culture combined with these newly extended fields will lead to a new era of plant biotechnology that will play a crucial role in application for health, food, and environment.