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Probing molecular and cellular mechanisms in tissue culture samples of commercial crops using proteomic approach

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Plant tissue culture has played an increasingly important role in the production of elite planting stocks for the commercial crops. However, there are limitations encountered in the mass production of plantlets through tissue culture techniques. One of the key limitations is the low regeneration rate of the plantlets from the starting explant materials. Our group use the proteomic approach to elucidate the molecular and cellular mechanisms involved in the callus formation from the explants, which is an initial step in plantlets regeneration in tissue culture. In our study, 2D-PAGE coupled with MALDI TOF-TOF mass spectrometry were used to analyze callus proliferation samples of oil palm and vanilla orchids. Several differential proteins associated with callus proliferation were identified and elucidated. These differential proteins will be potential candidate markers for screening for calli of high proliferation rate in tissue culture of oil palm and vanilla orchids.

Biography

Chin Chiew Foan is an Associate Professor at the School of Biosciences in the University of Nottingham Malaysia Campus. She did her undergraduate and Master of Science degree at the University of Canterbury, New Zealand and obtained her PhD from the University of Malaya in Plant Biotechnology. Dr Chin is currently a council member for Asia Oceania Agricultural Proteomics Organization (AOAPO) and Malaysian Society for Molecular Biology & Biotechnology (MSMBB). Her current research interest involves investigating the cell growth and development in plant tissue culture using genomic and proteomic technology in tropical crops

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