

2016

October

## Proteomics and Metabolomics: Spearheading Oil Palm Improvement and Sustainability

UMI S RAMLI\*, BENJAMIN L Y CHUNG, NOOR IDAYU M TAHIR, SYAHANIM SHAHWAN, HASLIZA HASSAN, NURAZAH ZAIN, NURUL L ROZALI, SHAHIRAH B DZULKAFLI, NUR' AIN MISHAK AND ABRIZAH OTHMAN

*Advanced Biotechnology and Breeding Centre, Malaysian Palm Oil Board, No 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor Darul Ehsan, Malaysia*

*Malaysia is the world's second largest producer of palm oil, and this golden crop is a major contributor to its revenue. Research in oil palm biotechnology, has positively impacted the oil palm industry. However, poor understanding of oil palm biology is hindering this progress. Recently, mass spectrometry has become an increasingly useful tool for studying biological systems. Its rapid evolution has resulted in an impressive array of instruments and applications; yet it is still largely used only by specialists. The Malaysian Palm Oil Board (MPOB) has established a Proteomics and Metabolomics Platform (PROMET) as a core R&D facility, making the technology and/or data usable by non-mass spectrometrists. PROMET was established in 2008 for research in oil palm proteomics and metabolomics. The main focus was to unravel the important economic traits, such as high-value fatty acids and high-yielding genotypes through advanced omics technology. The facility also contributed to tackling basal stem rot by allowing post-genomics techniques. Availability of oil palm proteome and metabolome data in different fruit stages and tissues has provided crop-specific data to investigate the various physiological processes, such as fruit ripening, and uncover solutions to existing biological problems, e.g., drought stress. The key results from PROMET are discussed.*

**Keywords:** *Proteomics, metabolomics, oil palm, basal stem rot, yield.*

