

PROTEOMICS OF TRUNKING AND NON-TRUNKING SAGO PALM (METROXYLON SAGU ROTTB.)

Hasnain Hussain^{1*}, Maswida M. Kamal¹, Anastasia S. Edward Atit¹, Siti Izyan L. Kamarol¹,

Yan Wei Jie¹, Zainab Ngaini², Jameel Al-Obaidi³, Yusmin Mohd-Yusuf³

¹Department of Molecular Biology, ²Department of Chemistry, Faculty of Resource Science and Technology,
Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

³Centre for Research in Biotechnology for Agriculture (CEBAR),
University of Malaya, 50603 Kuala Lumpur, MALAYSIA.

*Email address of corresponding author: hhasnain@frst.unimas.my

Abstract

Sago plant stores its starch in the trunk. It is considered mature and ready to be harvested when reaches 6-8 years of growth. However, there are instances where sago palms in plantations remain stunted even after 10-14 years, thus devoid of starch in its trunk. This is known as non-trunking sago palm. The non-trunking phenotype of *Metroxylon sago* eliminates the economical value of the plant and this is one of the major concerns of sago plantation till this day. Our research group has embarked on efforts to identify molecular factors that contribute to the differences between two groups of sago palm including their proteomics. Part of the work involves comparative proteomics analysis of trunking and non-trunking sago palm leaf. Prior to that, protein extraction and preparation, protein separation by one- or two-dimensional electrophoresis (1-DE or 2-DE, respectively), followed by matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) were described. Using 2D gel electrophoresis, MALDI-TOF and RP-HPLC, we have identified several proteins that showed differences in level of protein expression between the two groups of sago palm.