

SCIENTIST IN PROFILE



DR MUHAMMAD AKBAR ABDUL GHAFFAR

Muhammad Akbar Abdul Ghaffar is currently the Head of Latex Harvesting Technologies and Physiology Unit. He acquired a degree in bioindustry majoring in horticulture from the Universiti Putra Malaysia, Serdang in 2003 and joined the Malaysian Rubber Board under the Crop Management Unit (CMU) as a research officer in 2004.

At CMU, his work was to study and evaluate tapping system techniques, including half spiral cut, quarter cut and puncture tapping method. Most of these techniques were coupled with different latex stimulant methods and were tested at different tapping panel positions using modern clones. Under the mechanisation team, he was involved in the development of Automated Rubber Tapping System (ARTS) machine resulting with two patents filed. Concurrently, he carried out research on volatile fatty acids of field latex to provide guidelines on the cleanliness of the collection utensils used, attributed to latex quality especially from the stimulated trees. He was also involved with the development and evaluation of water based ethephon stimulant (WBES) formulation, a potential alternative for the current latex stimulants based on its yield performance and minimal dryness incidence.

He started his career by evaluating ethephon based formulations and the used of ethylene gaseous to improve rubber yield. He was also involved with promoting the usage of Mortex and G-Flex among smallholders during their early stage of commercialisation. In 2012, he furthered his study at the Ohio Agricultural Research and Development Center (OARDC), Ohio State University, Wooster Campus and was awarded a PhD in 2017 for a thesis entitled “Rubber Particle Ontogeny in *Taraxacum kok-saghyz*”. His PhD research involved the understanding of laticifer cell development, stages of rubber particle ontogeny and abiotic stresses influencing rubber biosynthesis. Following his return from the United States, he was appointed as the Head of Latex Harvesting Technologies and Physiology in 2018.

While doing his PhD, he studied two major alternative rubber crops *i.e.* the guayule (*Parthenium argentatum*) and rubber dandelion (*Taraxacum kok-saghyz*) under the supervision of Professor Katrina Cornish. His main research subject, however, was the ontogeny of rubber particles in *Taraxacum kok-saghyz* which

deepened his understanding on rubber particles origin and its biosynthesis based on the various abiotic factors *i.e.* cold temperature, lights quality and the used of plant growth regulators. Akbar has presented his PhD works in numerous conferences including the annual conference of the Plant Growth Regulation Society of America in Kona, Hawaii (2015), Botany 2016 in Savannah, Georgia, Association for the Advancement of Industrial Crops (AAIC) International Conference, in Rochester, New York (2016) and during the Unconventional Proteins and Membranes Traffic Meeting which was held in Lecce, Italy (2016). Akbar has been an associate member of Plant Growth Regulation Society of America (PGRSA) since 2015. His other activities include lecturing for RISDA, FELCRA and FELDA at Akademi Hevea Malaysia besides conducting internal courses for MRB staff. He was awarded the “*Anugerah Khidmat Cemerlang*” in 2009 for his excellent job. His current projects are to promote the usage of quarter cut (S/4) as an alternative for the conventional tapping cut and pre-commercialisation of WBES stimulant which is important in ensuring rubber supply to the downstream sector. He also covers fundamental studies on rubber particle ontogeny in *Hevea* via microscopy approach. Recently, he has been appointed as a committee member for *Getah Untuk Pribumi* (GUP) programme.

