

Proteomics and bamboo research

*Khalid Rehman Hakeem, Faridah Hanum Ibrahim, Rozi Mohamed

Faculty of Forestry, Universiti Putra Malaysia, Serdang 43400, Selangor, Malaysia

**Corresponding author. Tel.: +603 89467211; email address: kur.hakeem@gmail.com*

Bamboo, being one of the fastest growing plants needs only between 3 and 4 years to mature before they are ready for harvesting and utilization. This makes bamboo the best possible alternative to replace timber in the future. As a result, bamboo has been the focus of research in recent years. Currently, there is a growing demand for thicker walled and rapidly growing bamboo from the industry due to its mechanical strength, high durability and uninterrupted as well as sustainable supply. However, the information on the physical, mechanical and chemical properties for different bamboo species and age-groups is rather limited. In the current *Omics era*, 'Proteomic Analysis' has now become one of the basic technologies to obtain essential information of the biological systems. Proteomics is a powerful tool to study the global changes in protein synthesis in response to environmental stimuli as well as during development. At present, we are performing the proteomics studies on various commercially important known species of bamboo to understand the molecular mechanisms of rapid growth as well as thick wall lumen. This will help us to better understand the growth characteristics and physical properties of bamboo at molecular level by identifying the novel proteins associated with the production of thick wall and rapidly growing culms of bamboo. We believe that the present proteomics study shall provide a new dataset and the gene screening list, which will be a useful resource for future genetic as well as genomic studies for the development of high quality bamboo cultivars.

Keywords: Proteomics, bamboo, thick wall lumen