

# Plant Science

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## Determination of polyphenol composition in *Hevea brasiliensis* and rubber-processing effluent via spectrophotometry and spectroscopy analysis

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*Hevea brasiliensis* produces valuable latex and is an important commodity throughout the world. Understanding its composition of phytochemicals such as polyphenol is vital to ensure sustainable production and a high quality yield. The knowledge on polyphenol profile of *Hevea brasiliensis* is surprisingly scarce, albeit the importance of this phytochemical particularly for plant protection. The knowledge on polyphenol profile in this crop is believed to be crucial for sustained rubber production to meet the constant world rubber demand. Moreover, there is also no report on the polyphenols profile in rubber processing effluents. The knowledge on composition of this valuable compound in the waste is similarly important, as it can create wealth opportunities from the source of waste. Thus, this study aimed to develop an optimal extraction method using solid phase extraction (SPE) for polyphenol in latex of *Hevea brasiliensis* and effluent from rubber processing. This study also intended to determine the ideal techniques for determination of polyphenol compounds via High Performance Liquid Chromatography (HPLC). Based on the optimized methods, this study worked on determining and profiling selected polyphenols in the latex and effluent. To support the profiling, this study also tests the sample for detection of polyphenols through Fourier Transform Infrared Spectroscopy (FTIR) and total phenolic content assay. This study succeeded in determining the best SPE method for extracting polyphenols in the samples of interest. The best separation method of polyphenol via HPLC was also determined. We observed the presence of polyphenols from both latex and effluent through FTIR and total phenolic content assay. HPLC analysis showed detection of several polyphenol peaks in both latex and effluent when compared to authentic polyphenol standards. Current achievement in this study marks the potential of understanding polyphenol composition in latex of *Hevea brasiliensis* and effluent from rubber processing which has not been explored before.

### Biography

Aidilla Mubarak is a Lecturer at the School of Food Science and Technology, Universiti Malaysia Terengganu, a university on the East Coast of Malaysia. Her educational background includes BSc in Molecular Bioscience from Universiti Kebangsaan Malaysia and MSc and Doctorate in Nutrition from The University of Western Australia. Passionate about phytochemicals, she preceded her career with research that revolves around polyphenols. Her research has largely been driven towards exploring composition of these compounds in various crops. The knowledge in nutrition also guided her research towards understanding pharmacological benefits from polyphenols from edible crops particularly on cardiovascular and metabolic disorders. She has published several high impact articles in the area of polyphenols, and was recognized with awards that mark her achievement in studies that explored the bioactive compounds from plant sources. She is also avid about sharing her familiarity for polyphenols with fellow scientists to sustain the interest for this super-compound.

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