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Study of metabolites of jute (*Corchorus olitorius* Linn.) leaves using ESI/glow discharge-mass spectrometry

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A scientific field that deals metabolites is termed as metabolomics. Specifically, metabolomics is the “systematic study of the unique chemical fingerprints that specific cellular processes leave behind”. For long time, jute (*Corchorus olitorius* Linn.) leaves have been used as an edible vegetable in some regions (such as Asia, Middle East, and Africa) of the world because the leaves contain therapeutically important metabolites which are considered as beneficial for human health. Such metabolites are beta-carotene, alpha-tocopherol, oleanolic acid, coumarin etc where alpha-tocopherol acts as an antioxidant. In this study, attempts have been made to investigate the metabolites present in jute leaves by mass spectrometry through fabrication of hybrid ion source of ESI and DBD glow discharge. A hybrid ion source could be useful to detect both the polar and non-polar metabolites present in biological samples simultaneously. In this work, jute leaves were taken as model samples and analyzed using a hybrid ion source of ESI and glow discharge. About 8 weeks aged jute leaves were collected from a jute field of Rangpur district, Bangladesh and then the leaves were air dried. The dried leaves were grinded with a mortar and preserved in air-tight bottles. About 50 mg of the powdered sample was taken in a 15 mL tube and mixed with 5 mL methanol and shook for 4 hrs at 25°C. About 1 mL of the supernatant liquid was transferred into an Eppendorf tube and centrifuged. The clear solution was diluted 100 times for analysis. Results show that hybrid system gives much more abundant ions compared with ESI only. This suggests that non-polar components in extracts that are difficult to detect by ESI can be effectively ionized by barrier discharge ionization.

Biography

Ahsan Habib has completed his Ph.D. from Saga University (Japan) and postdoctoral studies from Chiba University (June 2007-March 2009), Yokohama National University (April 2009-Feb 2010), and University of Yamanashi (Feb 2011-March 2013), Japan. He has been serving as an Associate Professor in the Department of Chemistry, University of Dhaka since 2009. He has published about 30 papers in reputed journals.

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