

# Annual Biotechnology Congress

July 23-24, 2018 | Vancouver, Canada

## Optimized extraction and identification of functional *Orthosiphon stamineus* proteins

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The plant, *Orthosiphon stamineus* (cat whiskers) is a medicinal herb belonging to the family Lamiaceae, and the plant leaves are commonly used as the herbal tea, popularly known as Java tea. It is used as a diuretic agent and for treatment against heat rheumatism. Currently, there are no protein profile data available for this important plant species. This study focused on the optimization of total protein extraction using four different extraction methods; QB buffer, phenol/sodium dodecyl sulfate with three pre-washed steps, phenol/sodium dodecyl sulfate without pre-wash steps and sigma protein extraction kit, it is aimed at determining the best protein extraction method, determine patterns and theoretically identify proteins. Overall, phenol/sodium dodecyl sulfate with three pre-wash steps result in better protein quality and pattern of separation. A total of 104 functional proteins were identified, each containing at least one unique peptide. Among the distinct proteins, rubisco activase and triosephosphate isomerase correspond to the chloroplastic protein of photosynthesis/carbohydrate metabolism, while phosphoglycerate kinase and glyceraldehyde are cytosolic enzymes of glycolysis pathway which were found to be significant housekeeping proteins in of the leaf tissue. The result of this study will be useful for advanced pharmaceutical research and could serve as a baseline for further proteomics work on *O. stamineus* and similar plant species.

### Biography

Kamal Usman is an advanced level PhD candidate and currently working as a Teaching Assistant in the Department of Biological and Environmental Science at Qatar University. He has a great passion for teaching and research. Since the completion of his undergraduate studies, and before joining Qatar University, not only does he experienced classroom teaching and advanced level research exposure while completing his master's degree at Universiti Teknologi Malaysia, was also privileged to contribute to education's development at the top level. He has served as a Senior Technical Officer on educational policy and development planning to a UK funded project in Nigeria; state programme on accountability, responsiveness and capability (SPARC) between 2012 to 2013. He also briefly taught at Bayero University, Kano preparatory to commence his PhD in 2015. His PhD thesis seeks to elucidate the mechanism of plants heavy metal uptake.

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