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11th World Congress on

Pharmaceutical Sciences and Innovations in Pharma Industry

February 27-28, 2017 Amsterdam, Netherlands

Application of network pharmacology for evaluating the protein-protein interaction network and mechanisms for polygonum cuspidatum in treating diabetes mellitus

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Diabetes mellitus is currently the fastest growing chronic disease in the world, its serious complications have caused substantial amount of financial burden in the healthcare sector. *Polygonum cuspidatum* has been commonly used for medical treatment among the Asian population. The stem and root has been known to exhibit anti-cancer property and the ability to attenuate diabetes related complications. Nonetheless, the active compounds of *P. cuspidatum* are still yet to be identified; thus, the objective of this study is to apply the principles of network pharmacology to promptly identify the most promising candidates from *P. cuspidatum* as well as understanding their functions, respectively. Network pharmacology is an approach to determine the process of disease development through understanding the system biology and bionetwork of the disease. Furthermore, by understanding the signal transduction pathways and how the compounds modulate the system, this will help to restore the balance in the affected biological processes, improve the efficacy of the compound and reduce its side effects. Using the traditional Chinese medicine integrative database, 46 compounds were identified in *P. cuspidatum* and bibliometrics was applied to measure the correlation between the compounds and diabetes. Among the 46 compounds, there were six compounds that showed clear correlation with diabetes, namely resveratrol, gallic acid, catechin, quercetin, rhein, and apigenin. These compounds will be evaluated in the later stage to fully understand the active compounds from *P. cuspidatum* that could potentially improve the complications of diabetes, and ultimately be used clinically on diabetic patients.

Biography

Ming-Chang Wu has completed his PhD from National Taiwan University, Taiwan. He is a Professor at the Department of Food Science and Dean at the College of Agriculture, National Pingtung University of Science and Technology. He provides assistance to food industries for several countries, especially Central America, Southeastern Asia and Africa. He has published more than 100 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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