Effect of Cultivation Practices on Phytochemical Properties and Secondary Metabolites in *Passifloraquadrangularis L.*

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Passifloraquadrangularis L. belongs to the family Passifloraceae which bears larger fruit with edible juicy mesocarp and pulp known as a good source of phytochemicals. Cultivation and plant management practices are known to influence the phytochemical compositions of agricultural produce. This study aimed to examine the influence of the cultivation practices on the antioxidant activities and secondary metabolites of the organically and conventionally grown *P. quadrangularis*. Findings revealed organically treated *P. quadrangularis* plants showed enhancement in their antioxidant properties and secondary metabolites profiles. Among the plant parts, leaves of *P. quadrangularis* grown organicallypossessed higher antioxidant activities compared to the conventional in all assays evaluated. The antioxidant activities in the edible parts of the *P. quadrangularis* fruit have also been enhanced through organic cultivation with significantly higher total phenolic content and DPPH in mesocarp, and the pulp showed higher total flavonoid content, DPPH and FRAP. This observation is supported by a higher level of vitamins and secondary metabolites in the samples. The secondary metabolites profile showed mesocarps were phenolic rich, the pulps were flavonoids rich while leaves showed good composition of phenolics, flavonoids and terpenoids with outstanding antioxidant activities. The common secondary metabolites for organically produced P. quadragularis in different plant parts include 2-isopropyl-3-methoxycinnamic acid (mesocarp and pulp), myricetin isomers (pulp and leaves), and malvidin-3-O-arabinoside isomers (pulp and leaves). This study confirmed that organic cultivated P. quadragularis possessed higher antioxidant activities contributed by its vitamins and secondary metabolites. .

Biography:

Dr. Shiamala Devi Ramaiya is from Malaysia working as a senior lecturer at Universiti Putra Malaysia Bintulu Sarawak Campus, Malaysia. She has obtained a Ph.D. in the field of Agronomy from the same university. In four years as an academician, she has obtained 3 grants as a principal investigator. Her research included cultivation and production of passion fruits, effect of environmental factors on seedling production of indigenous crop of such as terap and dabai, and physico-chemical and volatiles constituents of local durian species. Up to date, as a main and co-author, she has published a total of 25 journal publications in CIJ and non-cited index journals, 40 proceedings, and 3 chapters in book.