Specialized Metabolites in Rugula (*Eruca sativa*) and Watercress (*Nasturtium officinale*), Growing in Emerging Production Technologies (Hydroponic and Aquaponic Systems)

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Abstract:

Metabolomics have been recently used in crop production for analysis of quality and security of food products and within the process for finding foods (or compounds) with functional and nutraceutical properties. Thus, non-targeted metabolite profiling let to the recognition of intentional and non-intentional changes in the plant chemotype. In context, our objective was, evaluate the variation of metabolite profiles of two species of functional food, rugula and watercrees growing in hydroponic and aquaponic systems for search and identify those specialized metabolites associated to culture conditions. As results we found changes of metabolite profiles of rugula and watercress between hydro and aquaponic conditions. These changes were found to be mediated by selective occurrence of some glucosinolates such as 4-methoxyglucobrassinin and gluconasturin (the most studied compound occurred in watercress as inhibitor of carcinogenic cells growth). Metabolite profiling could serve as excellent tool for evaluate the quality of rugula and watercress cultured in different crop systems.