



# Changes in the Antioxidant Micronutrients and Volatile Metabolomics Profile of Selected Edible Vegetables Cooked with Coconut Milk and Heat Extracted Coconut Oil

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## ABSTRACT

Coconut milk, coconut oil, spices, condiments, and herbs are added to enhance flavor and aroma. The objective of the present study was to evaluate the effect of cooking methods on the total polyphenol content (TPC), antioxidant capacity and the metabolomics profile of selected vegetables. Incorporation of coconut oil and coconut milk with the spices and condiments had minimal effect on the evaluated parameters highlighting the positive role of traditional culinary methods in retaining nutritional qualities of vegetables ( $p < .05$ ). The increase in TPC, 2,2-diphenyl-1-picryl-hydrazyl-hydrate (DPP scavenging activity, and Ferric Reducing Antioxidant Power assay (FRAP) values were probably due to the synergistic effect of added ingredients which may have increased the bio accessibility of bioactives. Fifty eight metabolites were identified using a gas chromatograph-coupled to mass spectrometer. Vanillic acid, 3,5-di-tert-butyl-4-hydroxyphenylpropionic acid, Phytol, Phenol, 2,2'-methylenebis[6-(1,1-dimethylethyl)-4-methyl-, and phenol, 2,2'-[(1-methyl-1,2-ethanediy)bis(nitrilomethylidyne)] bis- were identified in analyzed samples. In conclusion, by adopting optimal cooking method the health promoting bioactives can be preserved.

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## Introduction

Daily consumption of fruits and vegetables is recommended due to the presence of phenolic compounds (PC), flavonoids, and proanthocyanidins. These compounds can serve as antioxidants and prevent the oxidative damage to cells. Because of this capability, phenolic compounds are essential for the prevention of a range of diseases, including cardiovascular disease, diabetes, aging-related degenerative disorders, and cancer related disorders (Natella, Belelli, Ramberti, & Scaccini, 2010).