The science of food encompasses food science, food technologies, and their applications across the food industry. Learn more about this exciting field and the positive impact in keeping our food safe, nutritious, delicious, and sustainable. Food science draws from many disciplines, including biology, chemical engineering, and biochemistry to better understand food processes and improve food products for the general public. As the stewards of the field, food scientists study the physical, microbial, and chemical makeup of food. They apply their findings to develop the safe, nutritious, and sustainable foods and innovative packaging that line supermarket shelves today. Determination of phytohormones have attracted increasing attentions in food safety field. In this study, an efficient and quantitative method was developed which can simultaneously determine thirteen phytohormones in fruits and vegetables using solid phase extraction (SPE) combined with high performance liquid chromatography-diode array detection (HPLC-DAD). The samples were extracted with 80% methanol containing 0.5% (V/V) formic acid, and the extracts were then concentrated and purified using primary secondary amine (PSA) and C18 tandem dual SPE cartridges. The analytes were separated on a Waters XBridge™ C18 column and eluated utilizing a gradient elution program of water and methanol. Mean recoveries of the thirteen analytes varied from 74.69 to 92.40%, with relative standard deviations <3.57%. The limits of detection and quantitation were 0.005–0.018 mg/kg and 0.02–0.10 mg/kg, respectively. The phytohormones in kiwi fruit, strawberry, bean sprout, and green pepper were detected using the above method, respectively. Only the IAA content of 0.14 mg/kg was detected for the strawberry from a supermarket, which was lower than the prescribed limit in food safety standards (0.2 mg/kg).

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Phenylpropanoids are present in commercially available dietary supplements and skin care products. Phenylpropanoids and their derivatives are plant secondary metabolites widely present in fruits, vegetables, cereal grains, beverages, spices and herbs. They are known to have multifaceted effects which include antimicrobial, antioxidant, anti-inflammatory, antidiabetic, anticancer activities and as well as exhibits renoprotective, neuroprotective, cardioprotective and hepatoprotective effects. Owing to their antioxidant, antimicrobial and photoprotective properties, these compounds have wide application in the food (preservation, packaging films and edible coating), pharmaceutical, cosmetic and other industries such as textile (colorant), biofuel (antioxidant additive) and sensors (sensing biologically relevant molecules). Phenylpropanoids are present in commercially available dietary supplements and skin care products.