**B-CAROTENE DETERMINATION OF PROCESSED FRUITS AND VEGETABLES USING REVERSED-PHASE ULTRA HIGH PRESSURE LIQUID CHROMATOGRAPHY**

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**BACKGROUND**

β-carotene is used by consumers as coloring agent, anti-oxidant and provitamin source. It is the most important provitamin A carotenoid found in dark-green leafy vegetables, carrots, and various fruits. Use of small-scale method provides a safe, cost-effective, efficient and environment-friendly analysis.

**OBJECTIVES**

The study aimed to analyze processed fruits and vegetables using validated small-scale β-carotene method by Ultra High Pressure Liquid Chromatography (UHPLC) and participate in Proficiency Testing for the assessment of the performance of the method, analyst and the laboratory.

**MATERIALS AND METHODS**

Method performance characteristics were measured and evaluated using Standard Reference Material 2385 Slurried Spinach and *malunggay* tea sample. The laboratory participated in the Proficiency Testing to assess its competence to conduct the analysis. β-carotene content of samples were also determined.

**RESULTS**

About 85% of the analysis time and amount of solvents used were saved using the small-scale method. There was a linear relationship (r=0.9996) between the concentration of β-carotene and its response using the UHPLC. The instrument can detect and quantify β-carotene above 0.0962 µg/mL and 0.3206 µg/mL, respectively. The method is accurate (15% mean bias) and precise (HorRat=0.69; HorRat=0.92). A total of 113 different processed fruit and vegetable products were purchased in the local supermarkets from North and South of Manila. Unsoaked *malunggay* tea (14,866 µg/100g) had the highest β-carotene content followed by carrot-flavored baby food (8,487 µg/100g), canned peas and carrots (2,550 µg/100g), carrot-flavored juice (1,266 µg/100g), and dried mangoes (1,262 µg/100g). The laboratory got satisfactory PT participation for Soup (z-score = -1.33) and Dietary Supplement (z-score = -1.21).

**CONCLUSIONS AND RECOMMENDATIONS**

Results of validation showed that small-scale method of β-carotene analysis is fit for its intended purpose. Fruits and vegetables are good sources of β-carotene. It is recommended to explore the possibilities of quantifying the carotenoid profile of fruit and vegetable products because of their nutritional benefits.