

21<sup>st</sup> Global Summit on

# Food Processing, Safety & Technology

September 28-29, 2018 | Chicago, USA

## Effect of Selenium-enriched probiotics starters on health-promoting and sensory properties of compound fruit and vegetable juices

Xinxing Xu, Dongsheng Luo, Yejun Bao, JihongWu  
China Agricultural University, China

The preparation of Selenium-enriched probiotics and the process of Selenium-enriched probiotic-fermented compound juice were performed and optimized using orthogonal text basing on the experiments of single factor. *Streptococcus thermophilus* CICC 6220 showed the strongest Se-enrich ability and the total selenium content reached 723 µg/g with a 33.8% Se-enriching rate under the optimal conditions. For using in juice fermentation, selenium content had a 13.0-fold increase significantly by adding 1% Se-enriched *S. thermophilus* starters. The health-promoting properties of fermented compound juice such as reducing sugar, free amino acids, organic acids were also determined. The contents of reducing sugar was decreased significantly from 6.697±0.013 g/100g to 5.903±0.035 g/100g after fermentation, the same downtrend was observed in the contents of free amino acids, tartaric acid, malic acid, and citric acid except for lactic acid ( $P<0.05$ ) after fermentation as well. After storage at 4°C for 21 days, the number of viable cell counts was still reached 10<sup>8</sup> CFU/mL which demonstrated the high viability of probiotics. Meanwhile, dynamic variation analysis of flavor components was determined by Headspace Solid-phase Microextraction-Gas Chromatography-Mass Spectrometry (HS-SPME-GC-MS) during the fermentation of the above selenium-enriched *S. thermophilus* and the other two probiotics. Among the volatiles, contents of alcohols, esters, aldehydes and ketones changed significantly in the process of fermentation. And Gas Chromatography-Olfactometry (GC-O) was used to demonstrate the differences of characteristic aroma compounds before and after fermentation. 11 aroma active substances were identified from juices without fermentation while 7 characteristic compounds were detected in fermented juices which were Trans-2-hexenal (grass flavor), Myrcene (balsamic flavor), 2-Ethylbutyl methacrylate (floral flavor and lemony flavor), Terpinolene (pine-scented flavor), β-Terpineol (clove flavor), 2-(4-methylphenyl) propan-2-ol (alcohol flavor) and Valencene (tangerine flavor).

### Biography

Xinxing Xu, a PhD candidate of China Agricultural University, has her expertise in Processing and Storage of Agriculture Products, especially on Food Flavor, Fruit and Vegetable Processing Technology and Theory, Fruit and Vegetable Resources Comprehensive Utilization.

freshstar129@163.com

### Notes: