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# Effect of *in vitro* simulated gastrointestinal digestion on polyphenol and polysaccharide content and their biological activities among 22 fruit juices

Minjing He, Jianyuan Zeng, Lu Zhai, Yuguo Liu, Hancheng Wu, Ruifeng Zhang, Zhentao Li, Enqin

Xia\*

Dongguan Key Laboratory of Environmental Medicine, School of Medical Laboratory, School of Public Health, Guangdong Medical University, Dongguan 523808, China

\* Correspondence: enqinxia@163.com; Tel.: +86-769-2289-6572

## Abstract

Polyphenols and polysaccharides, as natural bioactive compounds from common fresh fruits, are concerned in reducing risk of developing obesity and diabetes for human in recent years. The content of polyphenol and polysaccharide, their bioactivities among 22 fruit juices were investigated before and after *in vitro* gastrointestinal digestion in present study. After digestion, contents of polyphenol, polysaccharide and their antioxidant activity, the inhibitory activity of  $\alpha$ -amylase and  $\alpha$ -glucosidase significantly increased. *Punica granatum* Linn and *Actinidia globosa* C. F. Liang displayed maximal increment up to 2, 0.25 and 1.6 fold in contents of polyphenols and polysaccharides, and the inhibitory activity of  $\alpha$ -amylase, respectively. The correlation coefficient between contents and inhibitory activity of  $\alpha$ -amylase increased in range of 0.002 to 0.485. *Lycopersicon esculentum* Mill and *Pyrus bretschneideri* Rehd exhibited maximum increase in the inhibitory activity of  $\alpha$ -glucosidase with lowest contents of polyphenols and polysaccharides. The results indicated that polyphenols and polysaccharides digested synergistically contributing to the inhibitory  $\alpha$ -amylase activity, and other responsibly bioactive ingredients for inhibitory  $\alpha$ -glucosidase activity would be worthy discussed future. The findings above highlighted some

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