

THE EDUCATION UNIVERSITY OF HONG KONG  
FACULTY OF LIBERAL ARTS AND SOCIAL SCIENCES

**Research Output/Impact Prize for the Dean's Research Fund 2017-18**

**Brief Introduction of Awardee's  
Research Publication/Study and Future Research Development**

**Awardee (Dept):** Dr. Li Wai Chin, Assistant Professor (SES)

**Publication Title:** Adverse Child Health Impacts Resulting from Food Adulterations in the Greater China Region

A. *Briefly introduce your research publication/study for which you have received the prize.*

This summary describes the significance of a refereed article titled “Adverse child health impacts resulting from food adulterations in the Greater China Region” published in the Journal of the Science of Food and Agriculture in June 2017 (DOI: 10.1002/jsfa.8405). Published by Wiley, the Journal of the Science of Food and Agriculture (ISSN 0022-5142 , 1097-0010) is a world-class journal and ranked Q1 in ‘Agronomy and Crop Science’ and ‘Food Science’ categories. In addition, the article was selected as the cover image on volume 97 issue 12 of the journal.



Food adulteration is not a new and rare issue in human society; indeed, it can be traced back to the 18<sup>th</sup> and 19<sup>th</sup> centuries and was commonplace in the European and American regions. Because children are relatively vulnerable to food adulterants, studying the health impacts of food adulteration on children is important. The article provided an in-depth analysis and overview of the child health impacts of food adulterants in two recent food adulteration incidents in the Greater China Region: 1) a plasticizer incident in Taiwan and 2) a 2,4,6-triamino-1,3,5-triazine (melamine)-tainted milk incident in China. The involved food adulterants (bis(2-ethylhexyl) phthalate [DEHP], diisononyl phthalate [DiNP] and melamine) are harmful to the hippocampus, kidneys, reproductive organs, and immune system of children, and they also increased the risk of cancer development.

To detect food adulterants and to avoid further harmful effects caused by food adulteration, simple screening methods have been developed, and they have recently emerged as a new focus area for research. This article also summarized the simple screening methods (i.e. enzyme-linked immunosorbent assay and visual detection via colourimetric sensor) used to analyze the aforementioned food adulterants and reports how governments reacted to the recent food incidents.

Lastly, it is concluded that the food adulterants are not only caused developmental cognitive problems, kidney failure and reproductive problems but also increased children's risk to tumor formation. Children continuously absorb DEHP and DiNP from food as daily routine and up to 10% children exhibited a daily intake exceeding the recent reference dose. It is recommended to further investigate the health impacts induced by food adulterants as some adverse impacts are chronic and some have high recurrence rate. Developing additional simple screening methods and more comprehensive food safety laws are two procedures to reduce such incidents. The invention of simple detecting methods is recommended to increase the motives of small and medium food enterprises in strengthening their quality control; what's more, strict food safety law can threaten the potential wrongdoers via putting emphasis on the producer responsibility.

*B. How you used/will use your prize and perhaps its usefulness to your research development?*

The funding will be used for conducting an investigation about this topic. Based on the existing background information, we shall further examine into the physiological mechanisms of contaminants uptake and translocation by food crops. A study will further optimize crop yield and ensure the concentrations of contaminants in food crops remain within safety limits. This condition will in turn enhance food safety and subsequently human health.

*C. Expected research outcomes/outputs/impacts arising from this prize.*

The data generated will assist the preparation of a GRF proposal.