

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

Research Output/Impact/Knowledge Transfer Prize
for the Dean's Research Fund 2019/20

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

Awardee (Dept): Dr Li Wai Chin, Associate Professor (SES)
Publication Title/KT project: Alleviation of heavy metal pollution in soil and its uptake in rice

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

Many agricultural soils (including paddy soils) in China have been seriously contaminated by aerial deposition or irrigation using wastewater containing high levels of cadmium (Cd) in the past decades. Elevated metal concentrations in paddy soils can result in their high accumulation in rice biomass, particularly in grains, and this contributes a vital role in transferring toxic metal into food chains, leading to serious health risks to humans. Rice contaminated by cadmium (Cd) has been one of the most important environmental issues for decades. It is well known that the root is the first organ to encounter toxicants in the growth substratum, and root Cd uptake is believed to be a key process in the overall Cd accumulation in plants. However, limited information is available on the relationships between root structures, Cd uptake and translocation within rice plants. A detailed understanding of the internal mechanisms which play significant roles in Cd uptake and translocation in rice plants will benefit the breeding of suitable low accumulating cultivars. Our results revealed that different Cd uptake and translocation between genotypes were strongly correlated with their root morphology and structure, and such information would be useful in screening genotypes with low Cd accumulation.

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

The present study is highly relevant to Asian agricultural practices and provide new insights into the physiological mechanisms of metal uptake and translocation by rice plants.

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

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