



Supplementary Figure 7 | *In situ* detection of a pesticide residue on an orange skin. The Raman signals were collected using a Raman microscope (**A**) and a portable Raman spectrometer (**B**). The spectra shown were obtained from a clean orange skin (**a**), an orange skin contaminated with parathion (**b**), and an orange skin contaminated with parathion and then modified by addition of Au@SiO₂ NPs (**c**). The Raman spectrum of solid parathion is provided for comparison (**d**).