Supplementary Materials

Occurrence of DDT in foodstuffs and skin wipes from a rural area, South China: insight into human exposure pathway

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Contents:

Supplementary Text 1. Instrumental analysis.

The concentrations of DDTs were determined using an Agilent 7890 gas chromatograph (GC) equipped with an Agilent 5975 mass spectrometer (MS) using electron ionization in selected ion monitoring (SIM) mode and separated by a DB-5MS capillary column (60 m × 0.25 mm i.d. × 0.25 mm film thickness). The initial oven temperature was held at 120 °C, increased to 180 °C at 6 °C/min, then increased to 240 °C at 1 °C/min (held for 1 min), followed by an increase to 290 °C at 6 °C/min (held for 15 min), and finally to 310 °C at 5 °C/min (held for 5 min). And helium as the carrier gas at a flow rate of 1.1 mL/min. Selected ion fragments (m/z) as follows: m/z 246 and 248 for *p,p'*-DDE and *o,p'*-DDE; m/z 235 and 237 for *p,p'*-DDD, *o,p'*-DDD, *p,p'*-DDT, and *o,p'*-DDT.

Supplementary Text 2. Human inhalation and dust ingestion exposure assessment.

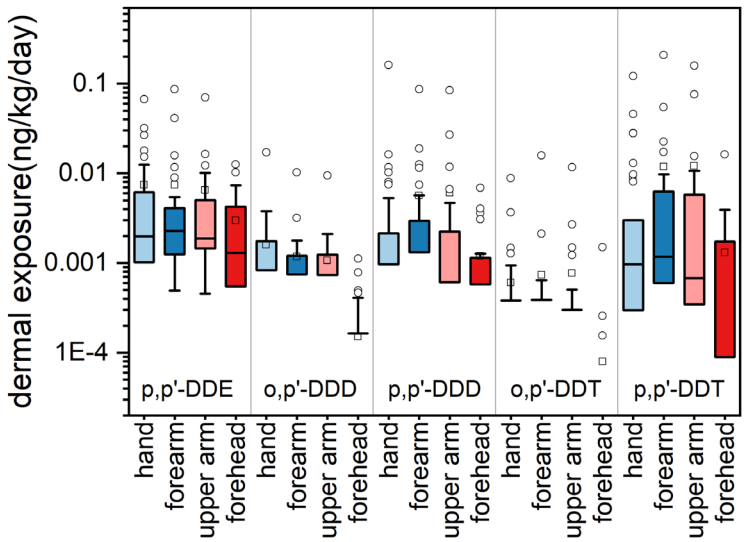
All equations and parameters for calculating air inhalation and dust ingestion exposure are shown as below:

$$DAD_{inhalation} = \frac{C_{air} \times IR \times E_{inha} \times EF}{BW}$$

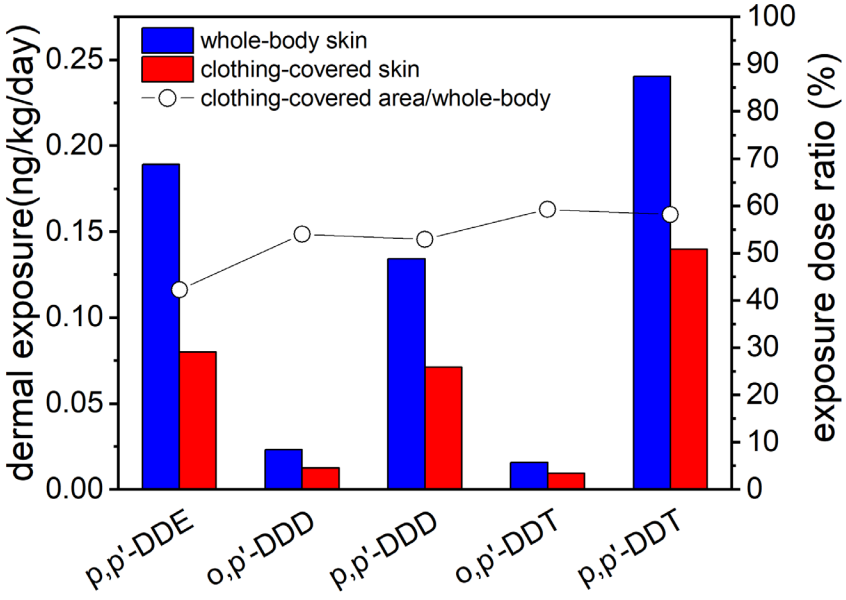
where, C_{air} (pg/m^3) is the concentration of DDT residue measured in PUF samples. IR (m^3/day) is the daily inhalation rate of air (20 m^3/day)[1]. E_{inha} (unitless) is the uptake efficiency of DDTs in air via lung (100%)[2]. EF (unitless) is the daily proportion of time spent at indoors (87.5%) or outdoors (12.5%)[3]. BW (kg) is the body weight (57 kg).

$$DAD_{ingestion} = \frac{C_{dust} \times DDI \times EF}{BW}$$

where DDI represents the daily intake rate of dust (30 mg/day).



Supplementary Figure 1. Dermal absorption of DDT in the four skin locations.



Supplementary Figure 2. Median dermal exposure levels and ratios of DDT on whole-body skin and clothing-covered skin.

Supplementary Table 1. The permeability coefficient of chemicals from skin lipids into dermal capillaries (K_{p-l}) for DDTs

Compound	K_{p-l} (cm/h) [a]
p,p'-DDE	1.52E-06
o,p'-DDD	2.81E-06
p,p'-DDD	2.48E-06
p,p'-DDT	8.70E-07
o,p'-DDT	7.53E-07

[a] the K_{p-l} values of PFRs were calculated using the method proposed by Weschler and Nazaroff (2012)[4].

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