## Supplementary Information

Untargeted metabolomics reveals transformation pathways and metabolic responses of the earthworm *Perionyx excavatus* after exposure to triphenyl phosphate

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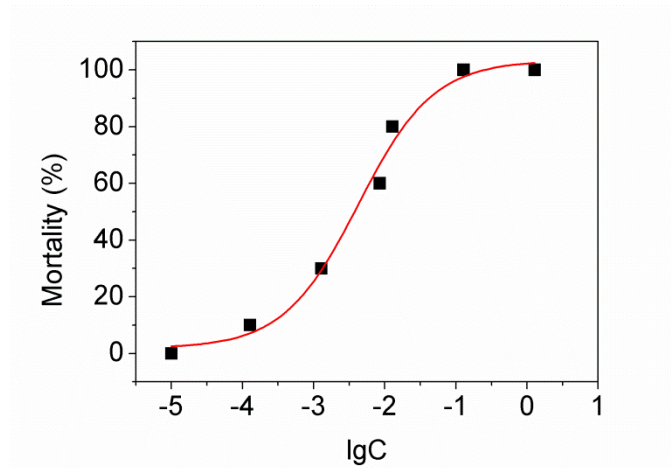
Supplementary Figure S1 Earthworm mortalities after dermal exposure for 48 h to filter papers with a series of TPHP concentrations. C: concentrations expressed as μg TPHP per cm^2 filter paper.
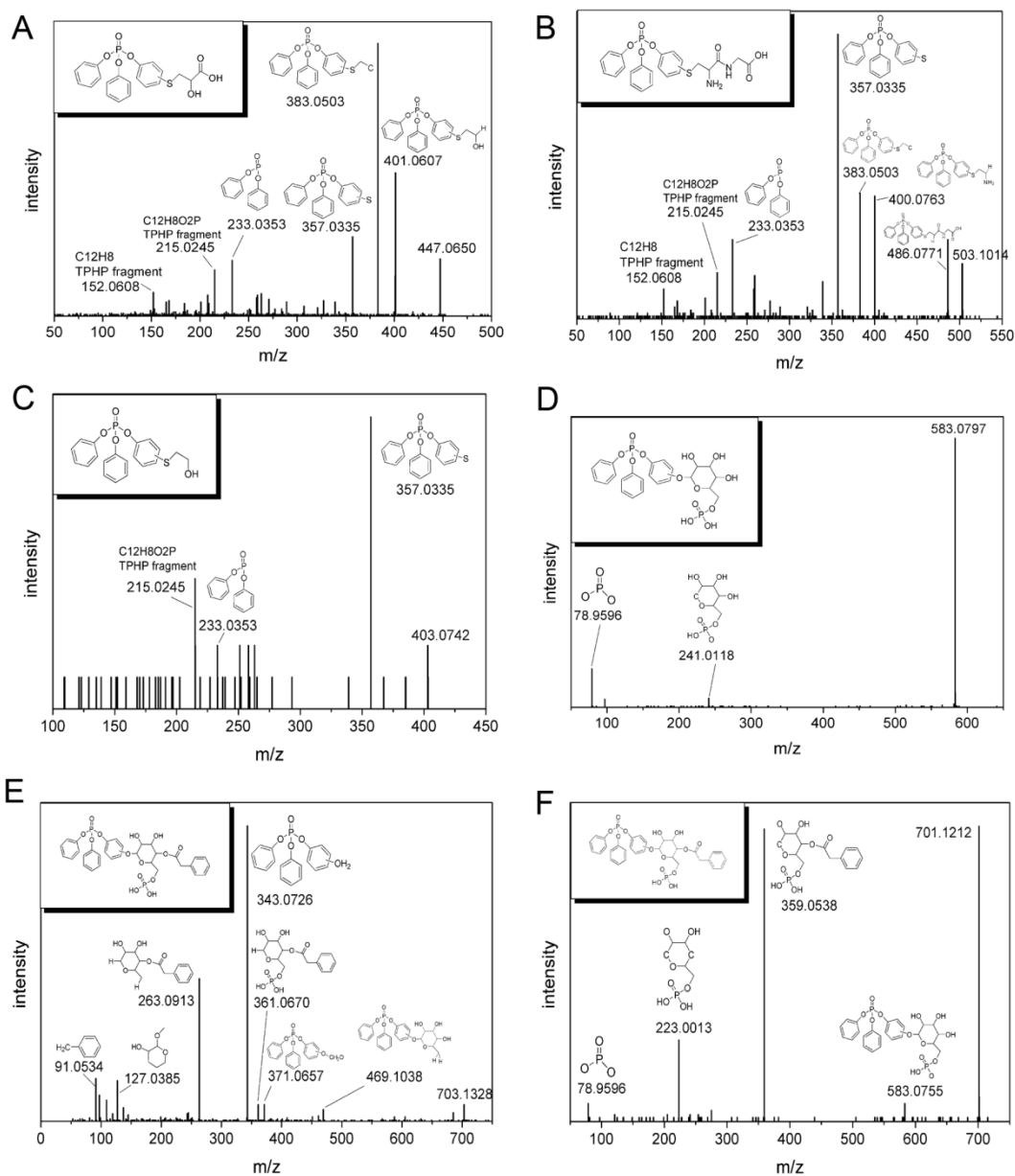
Supplementary Figure S2 MS/MS spectrum of (A) mercaptolactic acid-TPHP (m/z 447.0658 in ESI+), (B) cysteinylglycine-TPHP (m/z 503.1014 in ESI+), (C) mercaptoethanol-TPHP (m/z 403.0742 in ESI+), (D) phosphate-glucoside-TPHP (m/z 583.0797 in ESI-), and $C_{14}H_{19}O_{10}P$-TPHP [(E) m/z 703.1316 in ESI+ and (F) m/z 701.1212 in ESI-] with annotation of the putative fragments.
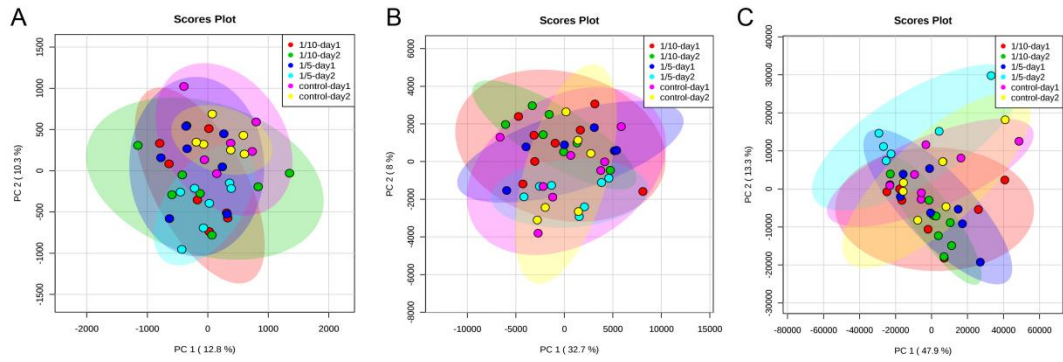
Supplementary Figure S3 Principal component analysis of extracted features from LC-QTOF spectra in (A) positive mode and (B) negative mode, and from (C) GC-MS spectra after acute exposure. The labels 1/10 and 1/5 refer to 1/10 LC50 and 1/5 LC50 exposure groups, respectively.
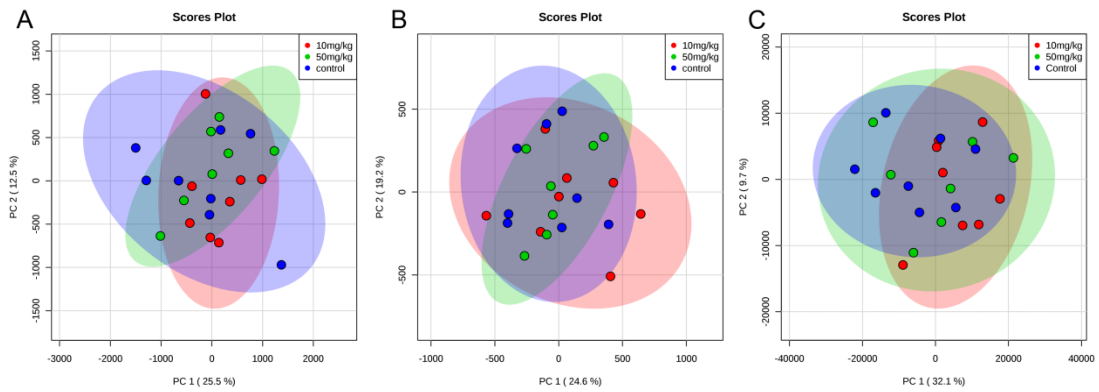
Supplementary Figure S4 Principal component analysis of extracted features from LC-QTOF spectra in (A) positive mode and (B) negative mode, and from (C) GC-MS spectra after chronic exposure.
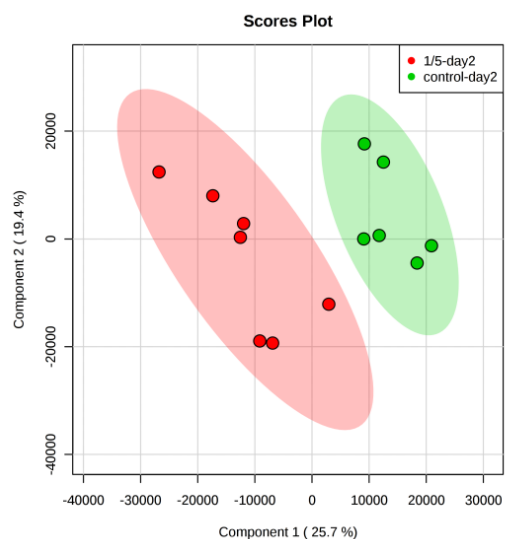
Supplementary Figure S5 Score plot of partial least squares discriminant analysis of GC-MS data (Control-day 2 versus 1/5 LC$_{50}$-day2) after probabilistic quotient normalization.