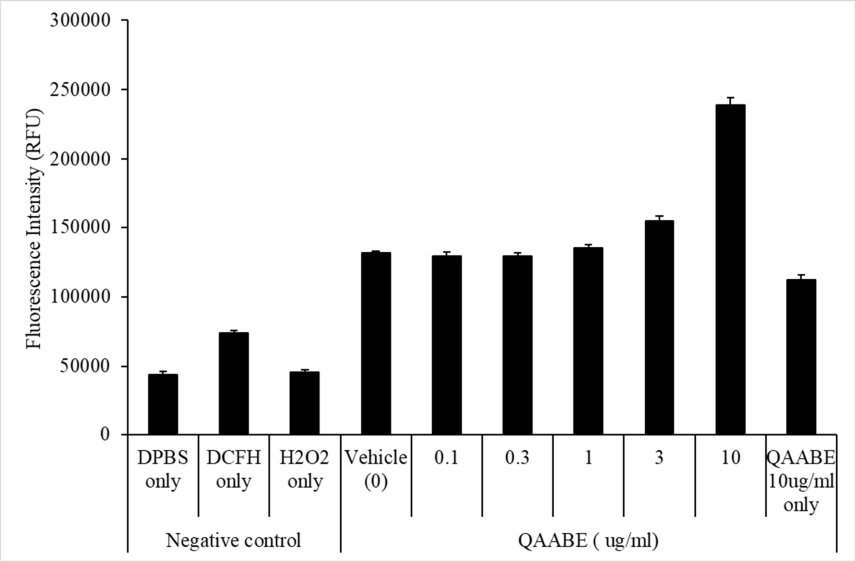

Supplementary Figure S1. Cell-free DCFH oxidation assay evaluating potential probe interference by QAABE. DCFH oxidation was induced by H_2O_2 in the absence of cells, and fluorescence intensity was measured in the presence of increasing concentrations of QAABE. Vehicle represents the DCFH + H_2O_2 control containing DMSO. QAABE did not suppress DCF fluorescence; instead, fluorescence intensity increased with increasing QAABE concentrations. QAABE-only wells (DPBS + QAABE) were included to evaluate extract-derived background fluorescence. Although QAABE alone produced a modest fluorescence signal compared with DPBS, this signal remained lower than the fluorescence observed in all DCFH + H_2O_2–containing conditions. These results indicate that QAABE does not act as a fluorescence quencher of the DCF probe.

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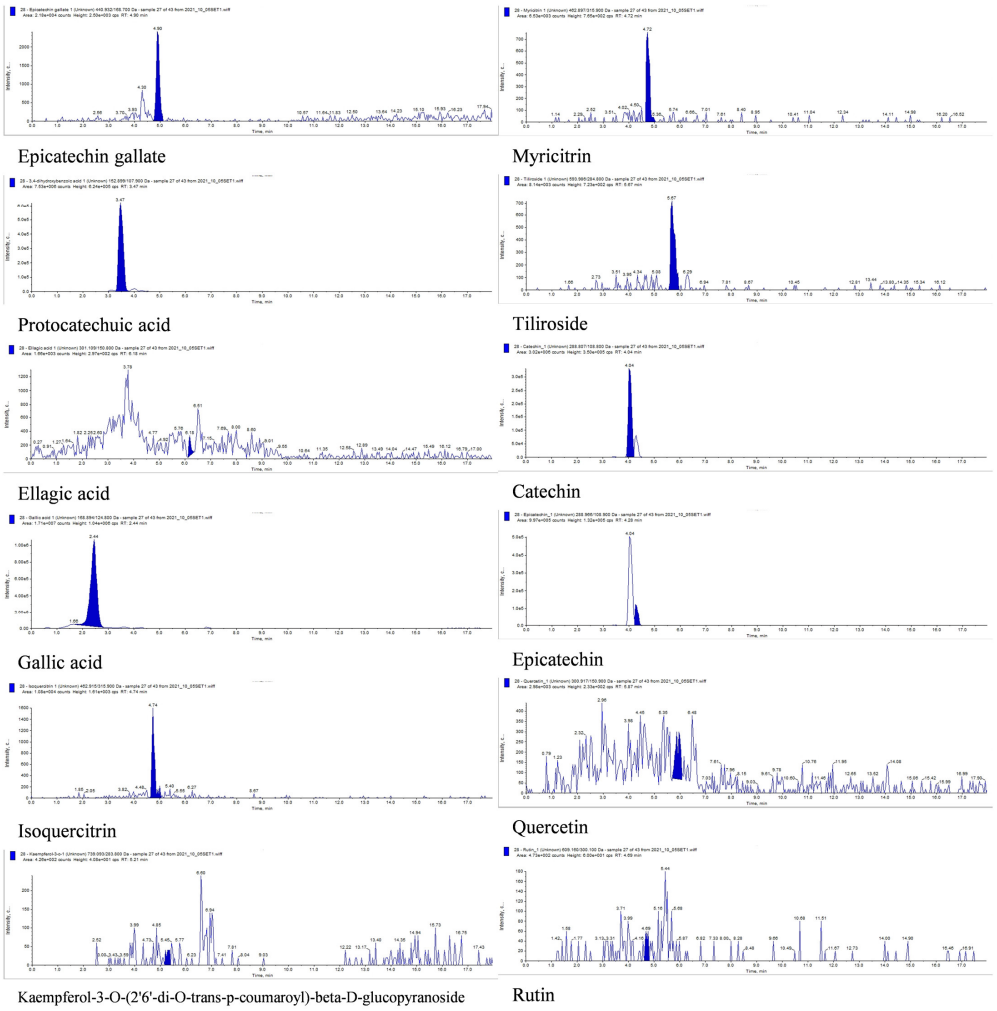
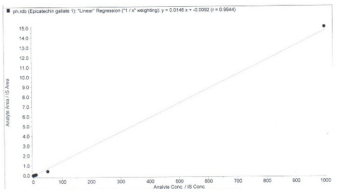
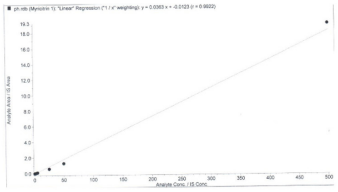


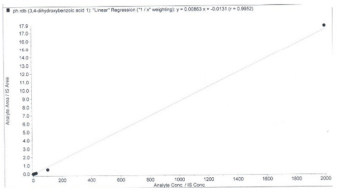
Supplementary Figure S2. LC–MS/MS MRM chromatograms of phenolic compounds identified in QAABE samples. Each peak represents the characteristic precursor-to-product ion transition of the respective compound.



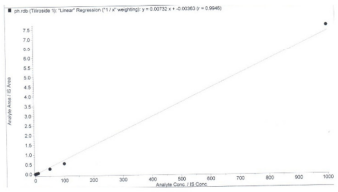
Epicatechin gallate



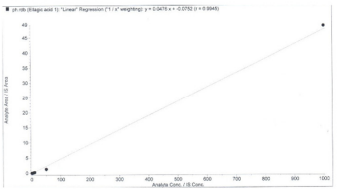
Myricitrin



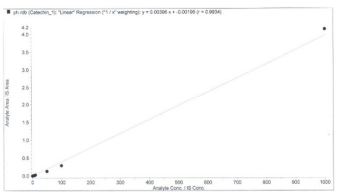
Protocatechuic acid



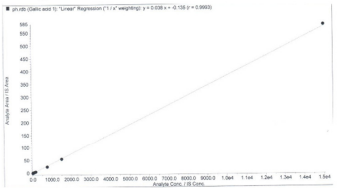
Tiliroside



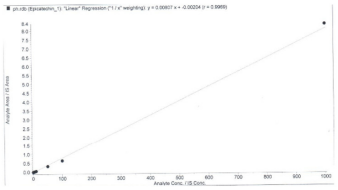
Ellagic acid



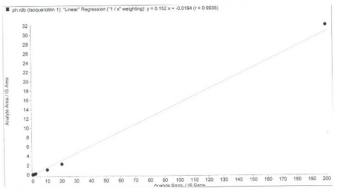
Catechin



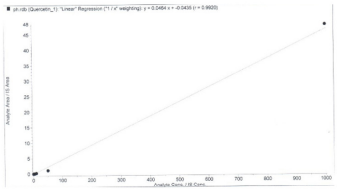
Gallic acid



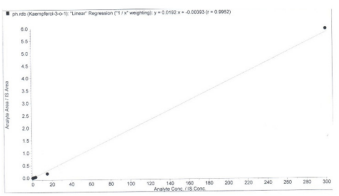
Epicatechin



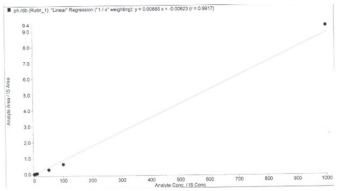
Isoquercitrin



Quercetin



Kaempferol-3-O-(2'6'-di-O-trans-p-coumaroyl)-bcta-D-glucopyranosidc



Rutin

Supplementary Figure S3. Calibration curves of phenolic reference compounds used for LC–MS/MS analysis. Calibration curves were generated using authentic reference standards analyzed under the same LC–MS/MS conditions as the QAABE samples. Linear regression equations and correlation coefficients (R^2) were calculated for each compound and used for the quantification of phenolic compounds detected in QAABE.