

Table S1. The effects of vanillin, 4-methylguaiacol, and 4-ethylguaiacol on AAPH-induced changes in mRNA expression levels of Nrf2, Keap1, SOD, CAT, and GPx in HepG2 cells. Trolox is used as the positive standard. The results are expressed as relative values versus the control group. Data are shown as the mean \pm SD from three independent experiments.

| | Relative mRNA expression | | | | |
|-----------------------------------|--------------------------|-----------------|-----------------|-----------------|-----------------|
| | Nrf2 | Keap1 | SOD | CAT | GPx |
| Control | 1.00 \pm 0.00 | 1.00 \pm 0.00 | 1.00 \pm 0.00 | 1.00 \pm 0.00 | 1.00 \pm 0.00 |
| AAPH | 0.34 \pm 0.05 | 0.99 \pm 0.04 | 0.28 \pm 0.01 | 0.00 \pm 0.00 | 0.63 \pm 0.06 |
| AAPH+Trolox | 1.05 \pm 0.31 | 0.51 \pm 0.09 | 1.04 \pm 0.19 | 2.06 \pm 0.44 | 1.61 \pm 0.21 |
| AAPH+Vanillin (1000 mg/L) | 2.14 \pm 0.24 | 0.38 \pm 0.07 | 0.80 \pm 0.09 | 1.16 \pm 0.17 | 1.41 \pm 0.25 |
| AAPH+Vanillin (500 mg/L) | 1.67 \pm 0.24 | 0.74 \pm 0.15 | 0.37 \pm 0.05 | 0.54 \pm 0.08 | 0.94 \pm 0.19 |
| AAPH+Vanillin (100 mg/L) | 0.52 \pm 0.10 | 0.84 \pm 0.07 | 0.29 \pm 0.05 | 0.40 \pm 0.12 | 0.61 \pm 0.08 |
| AAPH+4-Methylguaiacol (1000 mg/L) | 1.83 \pm 0.21 | 0.30 \pm 0.01 | 1.05 \pm 0.07 | 2.27 \pm 0.17 | 1.90 \pm 0.18 |
| AAPH+4-Methylguaiacol (500 mg/L) | 1.40 \pm 0.12 | 0.53 \pm 0.03 | 0.80 \pm 0.19 | 0.97 \pm 0.17 | 1.30 \pm 0.18 |
| AAPH+4-Methylguaiacol (100 mg/L) | 1.01 \pm 0.05 | 0.77 \pm 0.04 | 0.41 \pm 0.06 | 0.70 \pm 0.26 | 0.59 \pm 0.06 |
| AAPH+4-Ethylguaiacol (1000 mg/L) | 2.01 \pm 0.29 | 0.26 \pm 0.03 | 1.18 \pm 0.09 | 4.12 \pm 0.31 | 2.45 \pm 0.34 |
| AAPH+4-Ethylguaiacol (500 mg/L) | 1.58 \pm 0.19 | 0.44 \pm 0.06 | 0.76 \pm 0.05 | 2.56 \pm 0.29 | 1.56 \pm 0.10 |
| AAPH+4-Ethylguaiacol (100 mg/L) | 1.05 \pm 0.08 | 0.56 \pm 0.08 | 0.39 \pm 0.05 | 0.69 \pm 0.13 | 0.67 \pm 0.07 |

Table S2. The effects of vanillin, 4-methylguaiacol, and 4-ethylguaiacol on AAPH-induced changes in protein expression levels of Nrf2, Keap1, SOD, CAT, and GPx in HepG2 cells. Trolox is used as the positive standard. The results are expressed as relative values versus the control group. Data are shown as the mean \pm SD from three independent experiments.

| | Relative protein expression | | | | |
|----------------------------------|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| | Nrf2 | Keap1 | SOD | CAT | GPx |
| Control | 1.00 \pm 0.00 | 1.00 \pm 0.00 | 1.00 \pm 0.00 | 1.00 \pm 0.00 | 1.00 \pm 0.00 |
| AAPH | 0.71 \pm 0.04 | 1.00 \pm 0.04 | 0.70 \pm 0.03 | 0.81 \pm 0.09 | 0.82 \pm 0.02 |
| AAPH+Trolox | 1.37 \pm 0.05 | 1.31 \pm 0.03 | 1.38 \pm 0.03 | 1.01 \pm 0.02 | 1.01 \pm 0.02 |
| AAPH+Vanillin (500 mg/L) | 1.08 \pm 0.10 | 1.03 \pm 0.04 | 1.25 \pm 0.02 | 1.24 \pm 0.12 | 1.25 \pm 0.04 |
| AAPH+4-Methylguaiacol (500 mg/L) | 1.33 \pm 0.07 | 0.99 \pm 0.03 | 1.07 \pm 0.02 | 1.27 \pm 0.06 | 1.15 \pm 0.03 |
| AAPH+4-Ethylguaiacol (500 mg/L) | 1.34 \pm 0.11 | 0.75 \pm 0.04 | 1.10 \pm 0.05 | 1.10 \pm 0.08 | 1.13 \pm 0.03 |