Supplemental materials

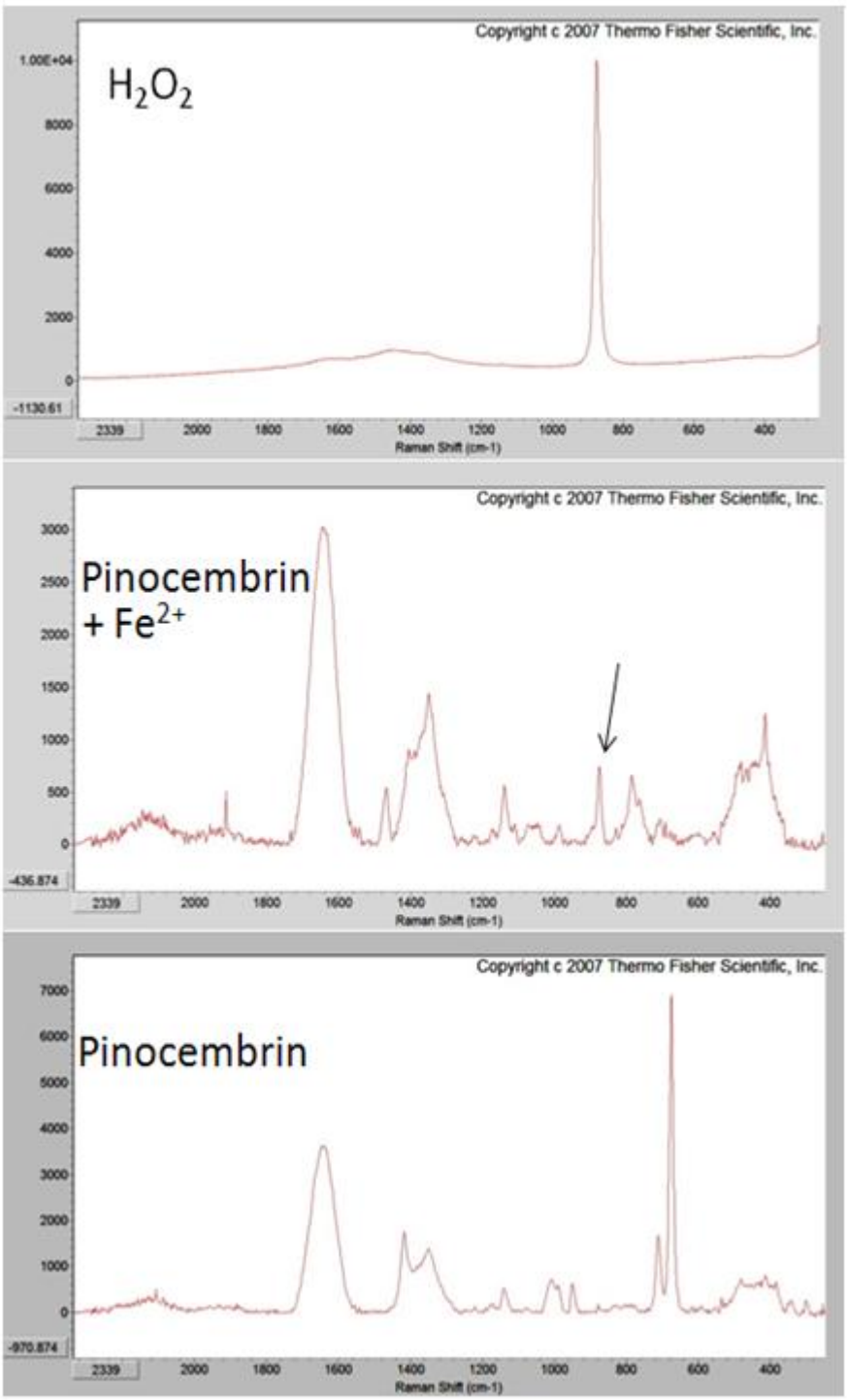
Fig. S1. Surface-enhanced Raman spectrometric analysis. For simplicity, pinocmebrin but not propolis was used in the experiment, where solutions of pinocmebrin (100 μM) in PBS with or without 50 μM $FeSO_4$ (pinocmebrin +Fe^{2+} or pinocmebrin) were analyzed and H_2O_2 (20 μM) was used as the control. The arrow shows the peak presumably due to H_2O_2. Technical service was provided by TopTek-Enwave Optronics Inc., (Nei-Hu,Taipei).

Fig. S2. Propolis-Induced oxidative DNA damage is subject to repair. AGS cells in overnight culture at 50% confluency were treated with 0.3 μg/ml propolis for 1 h before being analyzed for oxidative DNA damage at the indicated time points (filled circle) Assays without Endo III and Fpg (E+F) were used as control (open circle), indicating that propolis did not cause strand break.

Fig. S3. Cellular adaptation to propolis-induced oxidative DNA damage. AGS cells in overnight culture at 50% confluency were treated with or without 0.3 μg/ml propolis for 8 h and then treated again with propolis at the same dose for 1 h before being harvested for analysis of oxidative DNA damage with the comet assay (columns 3 and 4). Cells without any treatment or cells received treatment with propolis for 8 h alone, columns 1 and 2, respectively, were used as controls. The asterisk (*) indicates statistical significance ($p<0.01$; $n=3$) between the indicated experiments. Error bars for SE.

Fig. S4. Glutathione reductase (GR) activity of cell extracts of CL1-0 cells and the GR RNAi knockdown strain. The knockdown strain was selected from CL1-0 cells transfected with the pLKO.1-shGR vector in puromycin (0.8 μg/ml) containing medium. GR activity was measured as described previously (Rescigno et al., *Biochemistry* 1994, 33: 5721-5727). The asterisk (*) indicates statistical significance ($p<0.01$; $n=3$) between the indicated experiments. Error bars for SE.

Fig. S1.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H_2O_2
Raman Shift (cm-1)
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Pinocembrin
+ Fe^{2+}
Raman Shift (cm-1)
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Pinocembrin
Raman Shift (cm-1)

Fig. S2.

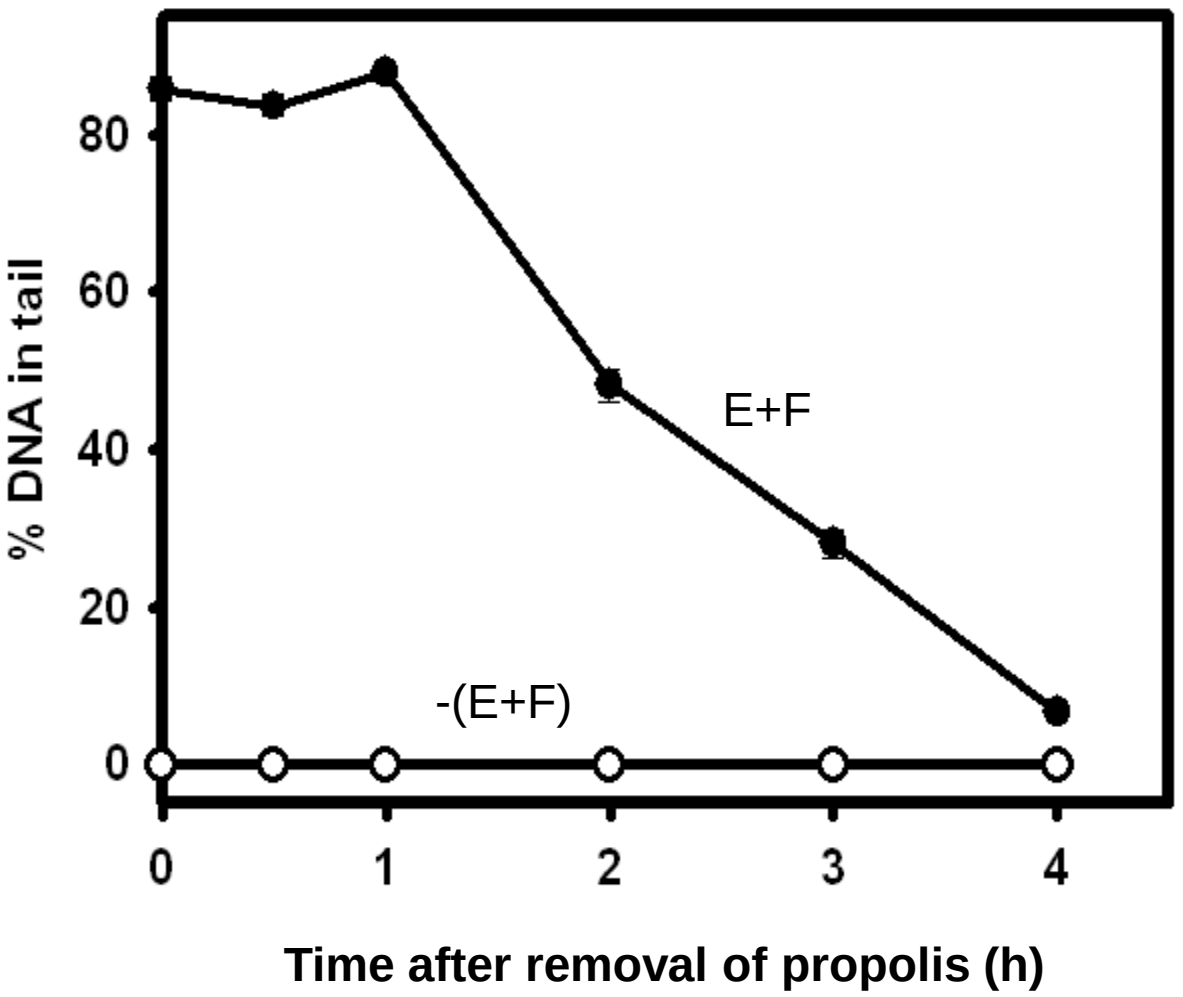
% DNA in tail
80
60
40
20
0
E+F
-(E+F)
0
1
2
3
4
Time after removal of propolis (h)

Fig. S3.

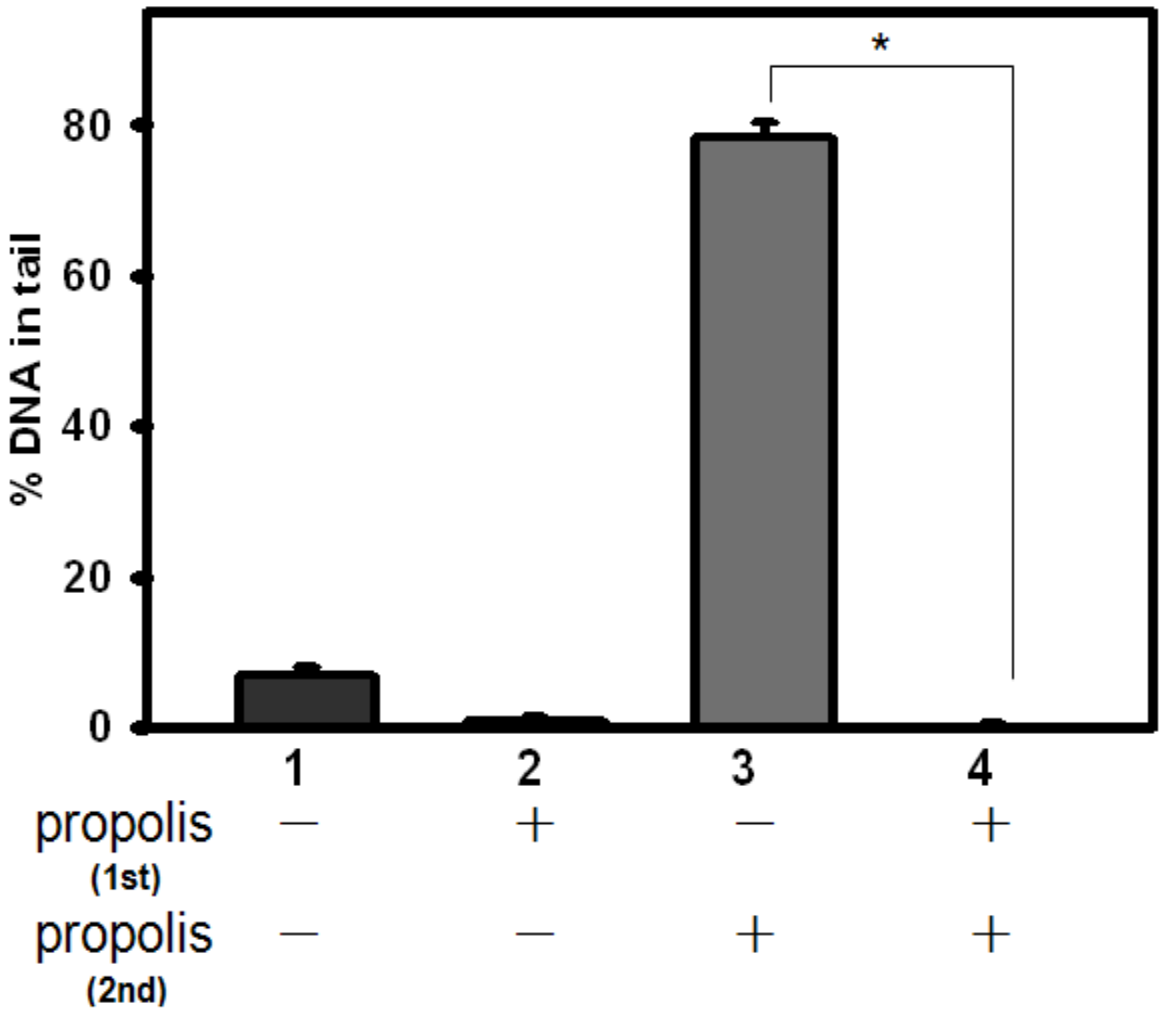

Fig. S4.