## Supplementary Data

**Table S1.** Primer sequences

| Type | Gene Description | Sequences (5′ → 3′) |
|---|---|---|
| Human | Filaggrin | F : AGTGCACTCAGGGGGCTCACA<br>R : CCGGCTTGGCCGTAATGTGT |
| | Involucrin | F : TTGGTCAGTGAAGCGATGAG<br>R : AGATCTGTCTGCAGGGCTGT |
| | Loricrin | F : GGCTGCATCTAGTTCTGCTGTTTA<br>R : CAAATTTATTGACTGAGGCACTGG |
| | Glyceraldehyde 3-phosphate dehydrogenase (GAPDH) | F : ATCAAGTGGGGCGAT GCTG<br>R : ACCCATGACGAACATGGGG |

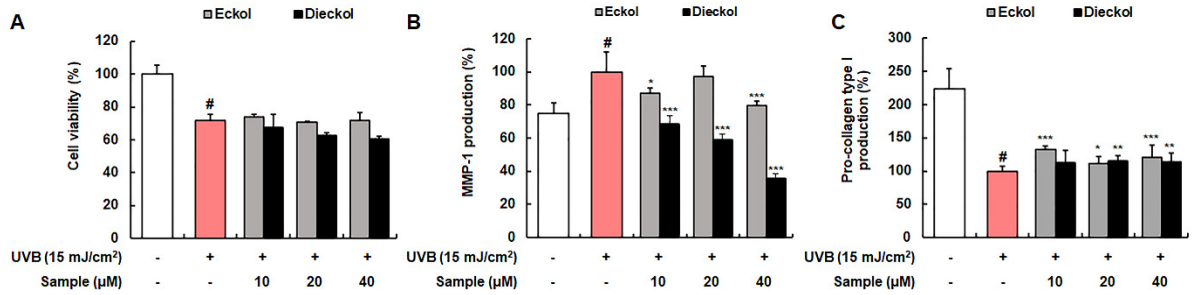


**Figure S1.** Effects of eckol and dieckol on cell viability and productions of matrix metalloproteinases-1 (MMP-1) and pro-collagen type I in UVB-irradiated Hs68 cells. Cells were irradiated by UVB and then treated with various concentrations of eckol and dieckol (10, 20, and 40 μM). **(A)** The cell viability was analyzed by using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) assay. **(B, C)** The MMP-1 and pro-collagen type I levels in the cell culture media were analyzed by using ELISA kits. Values are represented as the mean ± standard deviation (SD). $^{\#}p < 0.05$ vs. the non-UVB-irradiated control group; $^{*}p < 0.05$, $^{**}p < 0.01$, and $^{***}p < 0.001$ vs. the UVB-irradiated group.

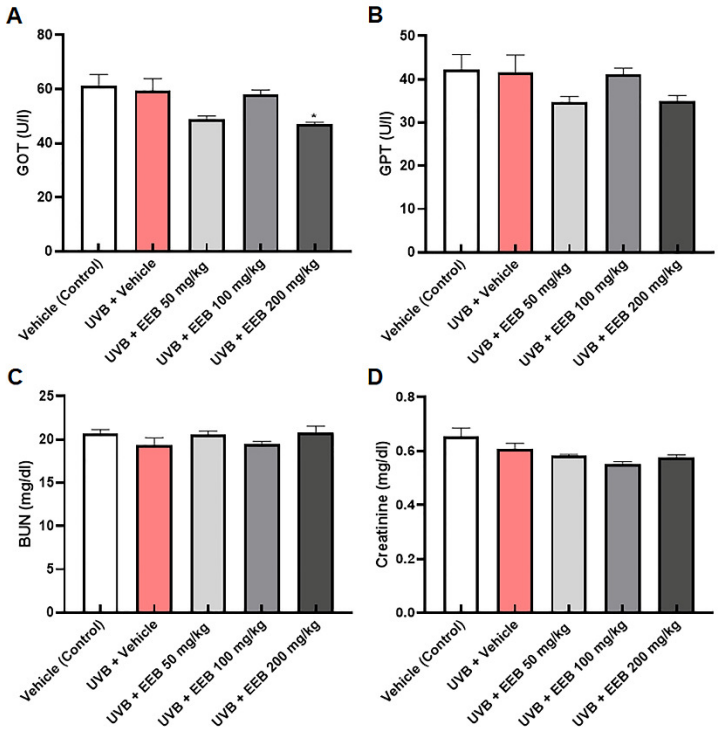


**Figure S2.** Hepatotoxicity and renal toxicity of EEB in HR-1 hairless mice. Biochemistry tests including **(A)** glutamic oxaloacetic transaminase (GOT, AST), **(B)** glutamic pyruvic transaminase (GPT, ALT), **(C)** blood urea nitrogen (BUN), and **(D)** creatinine in plasma of tested HR-1 hairless mice. Values are represented as the mean ± SEM ($n$ = 6). $^{\#}p < 0.05$ vs. the vehicle-treated control group; $^{*}p < 0.05$ vs. the UVB only-treated group.