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Supplementary Materials

Unveiling the biological properties of *Rosa rubiginosa L* leaf extract as a bio-functional ingredient based on 2D cell-based models and *in vitro* assessments.

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Table S1. Relative mRNA expression of genes.

Gene **Copyright:** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).	Gene ID	Relative mRNA expression ration versus control NHEK treated with extract and UVA irradiation (0.05μg/ml)	Pvalue (ANOVA)
DEFB4	56519	1.412 ± 0.001	P <0.05
IL-1a	3552	0.468 ± 0.001	P <0.05
IL-1β	3553	0.472 ± 0.001	P <0.05
IL-6	3569	0.412 ± 0.001	P <0.05
IL-8	3576	0.462 ± 0.001	P <0.05
TNF-α	7124	0.432 ± 0.001	P <0.05
GPX1	2876	2.412 ± 0.002	P <0.05
GPX4	2879	2.512 ± 0.001	P <0.05
SOD1	6647	2.942 ± 0.002	P <0.05
NRF2	4780	4.312 ± 0.001	P <0.05
CAT	847	3.982 ± 0.001	P <0.05

COL3A1	1281	4.012 ± 0.001	P <0.05

Table S2. Gene name, Accesion No, Kegg pathway, Primer

Gene Symbol	**Gene Name**	**Accession No**	**Kegg pathway**	**Primmer F (5'-3')**	**Primmer R (5'-3')**
DEFB4	β- defensins 4	NM_019728.4	map04621	CTCCTCTTCTCGTTCCTCTTCA	TTCTAGGGCAAAAGACTGGATG
IL-1a	Interleukin 1 alpha	NM_000575.5	map04064	CATGTCAAATTTCAC-TGCTTCATCC	GTCTCTGAATCAGAAATCCTTCTATC
IL-1β	Interleukin 1 beta	NM_000576.3	map04064	GCATCCAGCTACGAATCTCC	CCACATTCAGCACAGGACTC
IL-6	Interleukin 6	NM_000600.5	map04064	ATGAACTCCTTCTCCACAAGCGC	GAAGAGCCCTCAGGCTGGACTG
IL-8	Interleukin 8	NM_000584.4	map04064	ATGACTTCCAAGCTGGCCGTG	TGAATTCTCAGCCCTCTTCAAAAACTTCTC
TNF-α	Tumor necrosis factor At	NM_000594.4	map04064	CAGAGGGAAGAGTTCCCCAG	CCTTGGTCTGGTAGGAGACG
ACTB	actin, beta	NM_003254.2	hsa04066	TTTATCCATCCCCTGCAAACTG	TTTTCAGAGCCTTGGAGGAGC
GPX1	glutathione peroxidase 1	NM_000581.2	hsa00480	CGATGTTGCCTGGAACTTTGAG	ATGTCAATGGTCTGGAAGCGG
GPX4	glutathione peroxidase 4	NM_001039847.2	hsa00480	CGCTGTGGAAGTGGATGAAGAT	AGCCGTTCTTGTCGATGAGGA
SOD1	superoxide dismutase 1	NM_000454.4	hsa04146	GGATGAAGAGAGGCATGTTGGA	TAGACACATCGGCCACACCAT
CAT	catalase	NM_001752.3		TGCTGAGAAGCCTAAGAATGCG	ACAGATTTGCCTTCTCCCTTGC
COL3A1	collagen. type III alpha 1	NM_001303110.1	hsa04512	GGAGTTTAGAAGTGCGCCATTC	CCAAAAGCTGTAAGCGTTTGC
NFR2	nuclear factor. erythroid 2-like 2	NM_001145412.3	hsa04141	CCAAAGAGCAGTTCAATGAAGC	GCAGCCACTTTATTCTTACCCC
GAPDH	glyceraldehyde-3-phosphate dehydrogenase	NM_001101.3	hsa04810	CTGTCCACCTTCCAGCAGATGT	AGCATTTGCGGTGGACGAT