# Enhanced skin anti-inflammatory and moisturizing action of gold nanoparticles produced utilizing *Diospyros kaki* fruit extracts

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NO.** | **RT(min)** | **m/z([M+H]+)** | **Formula([M+H]+)** | **Δppm**  | **Compound** |
| 1 | 2.47 | 221.0435 | C11 H9 O5 | -4.207 | Purpurogallin |
| 2 | 3.57 | 247.0802 | C8 H13 O6 N3 | -3.515 | Ranunculin |
| 3 | 5.8 | 294.1562 | C15 H22 O4 N2 | -4.245 | unknown |
| 4 | 8.22 | 231.1139 | C13 H12 O2 N | 4.880 | unknown |

**Fig. S1**

(A) Photo-diode array chromatogram (PDA) and (B) base peak chromatogram (BPC) of DK obtained by UPLC-MS analysis. The compound identification of four major phytochemicals in DK are listed in the below table.

**Table S1**

|  |  |
| --- | --- |
| **Testing condition of DK-AuNPs** | **Optimal condition** |
| Concentration of DK(6-9 mg/mL) | 7 mg/mL |
| Concentration of HAuCl4·3H2O (1-5 mM) | 4 mM |
| pH (2-5) | pH 4 |
| Temperature (30 – 60 °C)  | 60°C |
| Time (5-20 min) | 10 min |
| DK-AuNPs | λmax=543nm |

**Table S2:**

The information of the ELISA kits used in the study

|  |  |
| --- | --- |
| **ELISA Kit** | **Company** |
| Human IL-6 Quantikine ELISA Kit #S6050 | R&D Systems Inc. (Minneapolis, MN, USA) |
| Human IL-8/CXCL8 Quantikine ELISA Kit # S8000C | R&D Systems Inc. (Minneapolis, MN, USA) |
| Human CCL17/TARC Quantikine ELISA Kit # SDN00 | R&D Systems Inc. (Minneapolis, MN, USA) |

**Table S3.**

List of primers used in this study

|  |  |  |
| --- | --- | --- |
| **Gene** | **Forward primer**  | **Reverse primer** |
| **IL-6** | 5’-AGACAGCCACTCACCTCTTCAG-3’ | 5’-TTCTGCCAGTGCCTCTTTGCTG-3’ |
| **IL-8** | 5’-GAGAGTGATTGAGAGTGGACCAC-3’ | 5’-CACAACCCTCTGCACCCAGTTT-3’ |
| **CCL17/TARC** | 5’- TGTAAAACGACGGCCAGT-3’ | 5’- CAGGAAACAGCTATGACC-3’ |
| **CCL5/RANTES** | 5’- AGTGTGTGCCAACCCAGAGA-3’ | 5’- AGCAAGCAGAAACAGGCAAA -3’ |
| **CCL27/CTACK** | 5’- CTACAGCAGCATTCCTACTGC-3’ | 5’- ATGGAGCTTTCTCTCTTGGTG-3’ |
| **HAS1** | 5’-CCTCACCAACCGCATGCT -3’ | 5’- GGACGAGGGCGTCTCTGA-3’ |
| **HAS2** | 5’-CTGGGACGAAGTGTGGATTATG-3’ | 5’-GATGAGGCTGGGTCAAGCAT-3’ |
| **HAS3** | 5’-GCCCTCGGCGATTCG-3’ | 5’-TGGATCCAGCACAGTGTCAGA-3’ |
| **HYAL1** | 5’-CCTCACCAACCGCATGCT-3’ | 5’-TCCTTGATGGCCTGACATGA -3’ |
| **HYAL2** | 5’-GCACTCCCAGTCTACGTCTTCA-3’ | 5’-GCACTCTCGCCAATGGTAGAG-3’ |
| **GADPH** | 5’- GTCTTCACCACCATGGAGA-3’ | 5’- CGGCCATCACGCCACAGTTT-3’ |

**Table S4**.

The information of the antibodies used in the study

|  |  |
| --- | --- |
| **Antibody** | **Company** |
| PhosphoPlus® p38 MAPK Antibody Duet #8203 | Cell signaling (Danvers, MA, USA) |
| PhosphoPlus® MAPK (Erk1/2) Antibody Duet #8201 | Cell signaling (Danvers, MA, USA) |
| PhosphoPlus® SAPK/JNK Antibody Duet #8206 | Cell signaling (Danvers, MA, USA) |
| PhosphoPlus® IκBα Antibody Duet #8219 | Cell signaling (Danvers, MA, USA) |
| PhosphoPlus® NF-κB p65/RelA Antibody Duet #8214 | Cell signaling (Danvers, MA, USA) |
| β-Actinh Mouse mAb #3700 | Cell signaling (Danvers, MA, USA) |
| Anti-mouse IgG, HRP-linked Antibody #7076 | Cell signaling (Danvers, MA, USA) |
| Anti-rabbit IgG, HRP-linked Antibody #7074 | Cell signaling (Danvers, MA, USA) |