Supplementary materials

Effects of Bacterial Nanocellulose Loaded with Curcumin and its Degradation Products on Human Dermal Fibroblasts

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Table S1. The functional groups responsible for IR absorption.

| Wave number (cm⁻¹) | Primary assignment |
|-------------------|--------------------|
| 3508              | Stretching vibration of the OH |
| 2971–2849         | Stretch C–H vibrations |
| 1697              | Carbonyl vibration |
| 1602              | C=C symmetric stretching vibration in the aromatic ring |
| 1505              | C=O bond with double bond conjugation |
| 1428              | CH₂ deformation vibration |
| 1374              | In plane C–OH vibration |
| 1153              | Plane bending vibration in C₆H₅OH |
| 1025              | Stretching C–O vibration in alkyl aryl ether |
| 962               | C=O and C–OH |
| 940               | Ferulic acid |
| 855, 814          | Hydrogen vibration |

Curcumin and its Degradation Products in the Culture Medium

![Graph showing absorbance (%)](image-url)
Figure S1. Mitochondrial activity of human dermal fibroblasts grown in a pure cultivation medium and in media with unmodified curcumin (C), or with curcumin degraded at 180 °C (DC 180) or at 300 °C (DC 300) in various concentrations (0.01, 0.05, 0.1, and 0.5 mg/mL) on day 1 after adding the agent. Arithmetic mean ± SD from 4 measurements, ANOVA, Student–Newman–Keuls method. Statistical significance (p ≤ 0.05; depicted above the columns): * compared with cells cultivated in the pure medium; C or DC 300 compared with cells cultivated in the medium with C or DC 300 of the same concentration.

Figure S2. Morphology of human dermal fibroblasts grown in a pure cultivation medium and in media with unmodified curcumin (C), or with curcumin degraded at 180 °C (DC 180) or at 300 °C.
Curcumin and its Degradation Products in Bacterial Nanocellulose

Figure S3. Morphology of human dermal fibroblasts on pristine bacterial nanocellulose (BC) and on nanocellulose loaded with pure curcumin (BC + C), or with curcumin degraded at 180 °C (BC + DC 180) or at 300 °C (BC + DC 300) at various concentrations (0.05, 0.1, and 0.5 mg/mL) on day 3 after cell seeding. The cells were stained with phalloidin-TRITC (red; F-actin cytoskeleton) and with DAPI (blue; cell nuclei). Olympus IX 51 microscope, obj. 10×, DP 70 digital camera.

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