Supporting Information

New Curcumin-Loaded Chitosan Nanocapsules: In Vivo Evaluation

Edgar Marin¹,²,³, Maria Isabel Briceño², Alicia Torres⁴, Catherina Caballero-George¹

Affiliations

¹Institute of Scientific Research and High Technology Services, City of Knowledge, Panama, Republic of Panama
²Nano Dispersions Technology, City of Knowledge, Panama, Republic of Panama
³Department of Biotechnology, Acharya Nagarjuna University, Guntur, India
⁴Department of Veterinary Medicine, University of Panama, Panama, Republic of Panama

Correspondence

Dr. Catherina Caballero-George

Institute of Scientific Research and High Technology Services
City of Knowledge
P.O. Box 0843-01103
Panama
Republic of Panama
Phone +507 517-0700
Fax: +507 517-0020
Table 1S List of common ionic cross-linkers used for chitosan-based drug delivery systems or biomedical devices.

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<th>Type of cross-linker</th>
<th>Examples of agents</th>
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<tr>
<td>Anionic molecules and anions</td>
<td>Epichlorhydrin&lt;br&gt;Glutaraldehyde&lt;br&gt;Formaldehyde&lt;br&gt;Glyoxal&lt;br&gt;Citric acid&lt;br&gt;Succinic acid&lt;br&gt;Sulfate sodium&lt;br&gt;Tripolyphosphate&lt;br&gt;Pentasodium&lt;br&gt;β-Glycerophosphate&lt;br&gt;Disodium&lt;br&gt;Glucose-1-phosphate&lt;br&gt;Disodium&lt;br&gt;Glucose-6-phosphate&lt;br&gt;Disodium</td>
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<tr>
<td>Polymer</td>
<td>Carrageenan&lt;br&gt;Gelatin&lt;br&gt;Hyaluronic acid&lt;br&gt;Kondagou gum&lt;br&gt;γ-Poly(glutamic acid)&lt;br&gt;Sodium alginate&lt;br&gt;Sodium dextran&lt;br&gt;Sulfate&lt;br&gt;Pectin&lt;br&gt;Xanthan gum</td>
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<tr>
<td>Synthetic</td>
<td>Poly(acrylic acid)&lt;br&gt;Poly(methacrylate)&lt;br&gt; Poly(N-Isopropylacrylamide)</td>
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Fig. 1S Preparation of CLNC by the crosslinking method involve the dissolution of curcumin in the oil phase followed by the creation of an oil in water emulsion and finally a drop wise addition of emulsion into a chitosan solution.
Fig. 2S FTIR of curcumin, CLNC, and the CLNC after 30 days of storage.

Curcumin spectrum shows its characteristic absorption bands: 3512 cm\(^{-1}\) (phenolic O-H stretching vibration), 1627 cm\(^{-1}\) (aromatic moiety C=C stretching), 1505 cm\(^{-1}\) (C=O and C=C vibrations), 1427 cm\(^{-1}\) (olefinic C-H bending vibrations), 1272 cm\(^{-1}\) (aromatic C–O stretching vibrations), and 1024 cm\(^{-1}\) (C–O–C stretching vibrations) [29]. The spectra of chitosan and CLNCs at day 0 of preparation shows the main bands of chitosan film located at 1650 cm\(^{-1}\), which correspond to the stretching vibrations of C=O of the secondary amide, and 1320 cm\(^{-1}\), which is attributed to symmetric stretching vibrations of the tertiary amide. After 30 days of storage, the absorption peaks (1100 cm\(^{-1}\) and 960 cm\(^{-1}\)) gradually decrease, indicating a cleavage
of the sugar units. The absorption bands located in the region of 900 cm\(^{-1}\) and 1150 cm\(^{-1}\) are related to absorption of the C-O-C links. After storage, the absorption peaks in this region decrease. Meanwhile, CLNCs exhibited peaks at 1627 cm\(^{-1}\) (aromatic moiety C=C stretching), 1427 cm\(^{-1}\) (olefinic C-H bending vibrations), and 1272 cm\(^{-1}\) (aromatic C–O stretching vibrations), which are the characteristic peaks of curcumin and, also, a change in the peak at 1090 cm\(^{-1}\) corresponding to keto group of the curcumin.

**Fig. 3S** Representative chromatogram of **a)** standard containing 2.0 ng/mL of curcumin and **b)** plasma sample collected from mice after 10 min of oral administration.