

Conjugated Linoleic Acid-Carboxymethyl Chitosan Polymeric Micelles to Improve the Solubility and Oral Bioavailability of Paclitaxel

Iqra Mubeen ¹, Ghulam Abbas ^{1,*}, Shahid Shah ², Abdullah A Assiri ³

¹Department of Pharmaceutics, Faculty of Pharmaceutical Sciences, Government College University Faisalabad, Pakistan

²Department of Pharmacy Practice, Faculty of Pharmaceutical Sciences, Government College University Faisalabad, Pakistan

³Department of Clinical Pharmacy, College of Pharmacy, King Khalid University, Abha, Saudi Arabia

***Author for Correspondence**

*ghulamabbas@gcuf.edu.pk

1.1. ¹H-NMR of LA, CMCS and LA-CMCS conjugate

LA

[¹H-NMR, δ 5.46 (dtd, 1H), 5.39 – 5.30 (m, 1H), 2.58 (tp, 1H), 2.21 (t, 1H), 2.04 (tdd, 2H), 1.48 (p, 1H), 1.39 – 1.31 (m, 1H), 1.31 – 1.26 (m, 4H), 1.26 – 1.20 (m, 2H), 0.92 – 0.85 (m, 1H)].

CMCS

[¹H-NMR, δ 4.63 (dq, 1H), 4.33 (d, 1H), 4.15 (s, 2H), 3.94 (qq, 1H), 3.77 (qq, 1H), 3.73 – 3.62 (m, 2H), 3.35 (d, 3H), 3.19 (t, 1H), 3.15 – 3.03 (m, 2H), 1.87 (h, 1H), 1.03 (dt, 3H)].

LA-CMCS conjugate

[¹H-NMR, δ 7.35 (d, 1H), 5.54 – 5.45 (m, 2H), 5.39 – 5.30 (m, 2H), 4.77 (dq, 1H), 4.67 (d, 1H), 4.19 – 4.07 (m, 3H), 4.07 – 4.00 (m, 1H), 4.00 – 3.96 (m, 1H), 3.67 (d, 2H), 3.55 (dt, 1H), 3.47 (d, 3H), 2.52 (tdq, 2H), 2.18 (td, 2H), 2.04 (tdp, 4H), 1.94 (h, 1H), 1.51 (pd, 2H), 1.39 – 1.31 (m, 3H), 1.31 – 1.25 (m, 11H), 1.25 – 1.21 (m, 1H), 1.00 (dt, 3H), 0.94 – 0.84 (m, 3H)].

1.2. Particle size and zeta potential analysis of LA-CMCS2 micelles

Results

	Size (d.nm):	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 93.0	Peak 1: 93.0	100.0	19.85
Pdl: 0.023	Peak 2: 0.000	0.0	0.000
Intercept: 0.843	Peak 3: 0.000	0.0	0.000
Result quality : Good			

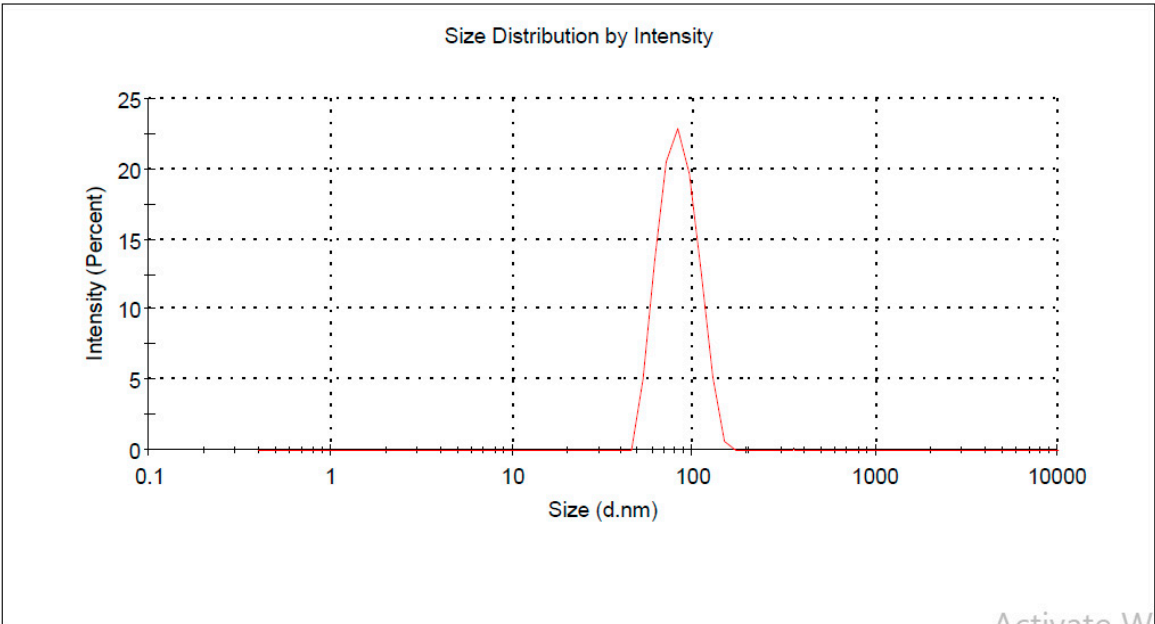


Figure S2: Size of micelles of LC-CMCS2

Results

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -29.0	Peak 1: -29.0	100.0	5.18
Zeta Deviation (mV): 5.18	Peak 2: 0.00	0.0	0.00
Conductivity (mS/cm): 0.0159	Peak 3: 0.00	0.0	0.00
Result quality : See result quality report			

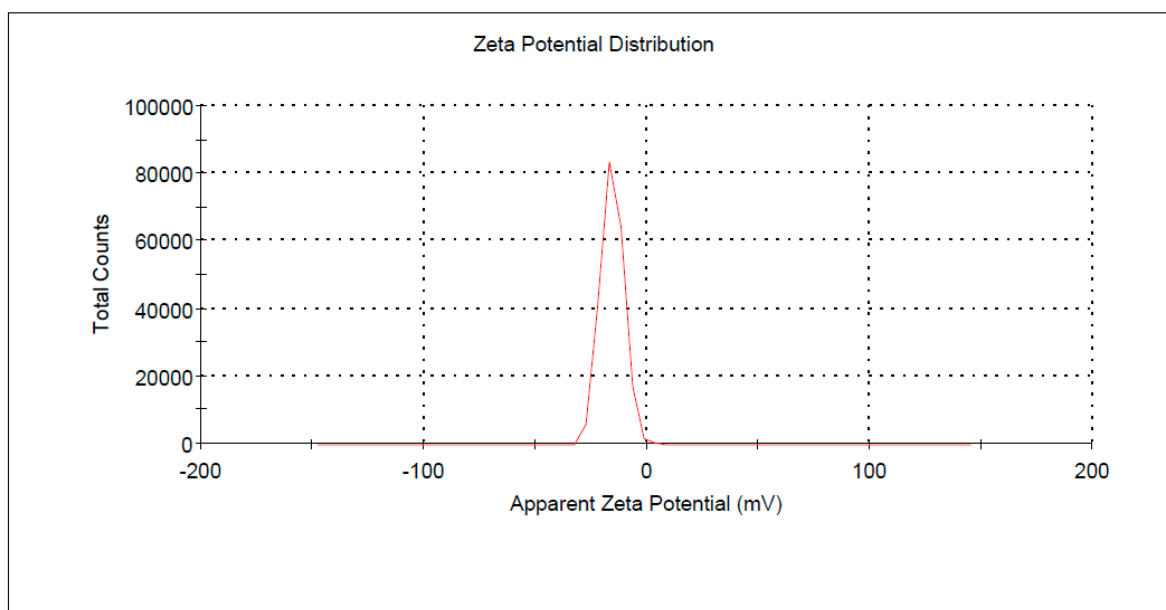


Figure S3: Surface charge of micelles of LC-CMCS2

1.3. Transmission electron microscopy (TEM)

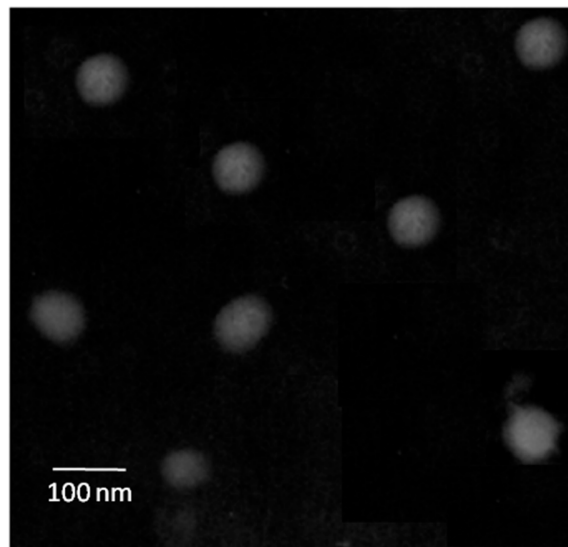


Figure S4: TEM image of LA-CMCS2 drug loaded micelles