



SDI Review Form 1.6

Journal Name:	American Chemical Science Journal
Manuscript Number:	Ms_ACSJ_25989
Title of the Manuscript:	Improving the Slow Release System Using Chitosan-Alginate Nanoparticles with Various Methods for Curcumin
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	Rationale It is required to elaborate, as follows: - the rationale of Ca with A and K (A and K are well explained but not Ca) - the method used to produce nanoparticles (energy or force to nanosized particles) Method As written, it seems that the authors are demonstrating just one factor: i.e. an effect of order of mixing. Materials are not well defined, e.g. what is the grade of curcumin? And etc. Loading of curcumin in AKCa, ACaK, and KACa was not well defined. What is the total curcumin loaded? What proportions are all the ingredients? What temperatures are used or controlled? Which solvents are used for curcumin solution? etc. There are several sentences between lines 56-75 which need clarifications, for examples:	It has been described clearly. It was corrected. They were corrected. Solvent has been described between lines 50-54.



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	- Calcium chloride solution 18 mM (2.5 mL) was added dropwise to 25 mL aqueous sodium alginate 0.12% (w/v) while stirring for 30 minutes. Two mL of curcumin solution 1% (w/v) and 10 mL chitosan solution 0.05% (w/v) were added into the resultant calcium alginate pre-gel and stirred for an hour called as ACaK. [How? Which solvents were used? What factors were controlled?] . - AKCa were obtained as ACaK, but calcium chloride solution was added after mixing alginate and chitosan solution. KACa were obtained as AKCa, but 10 mL alginate solution was added into 25 mL of chitosan solution. [How? Which solvents were used? What factors were controlled? When and how was curcumin added?] - Chitosan solution (10mL) and 23 mL distilled water were added into 25 mL alginate solution and stirred for an hour called as AK. [Is this shorter than others which are equilibrated overnight? If so, why?] - The resultant suspensions were equilibrated overnight at room temperature to allow nanoparticles and to form uniform particle sizes and then separated by centrifugation at 4°C. [What factors were	Solvent has been described between lines 50-54. were described line 65. Solvent has been described between lines 50-54. were described line 65. Solvent has been described between lines 50-54. were described line 65. Was corrected.
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	controlled? Usually, nanoparticles tend to aggregate?] - Lines 71-72 <i>The amount of drug entrapped was determined by shaking the solution and then supernatant was analyzed for drug loading by measuring the absorbance at 426 nm in UV spectrophotometer. [Were the nanoparticles separated from the supernatant? How?]</i> - Lines 84-86 <i>To establish the curcumin release profiles from nanoparticles, the curcumin loaded nanoparticles were separated from matrix by shaking at 37°C in various times. At appropriate intervals, five mL solution was taken and analyzed using UV spectrophotometer. [Were the nanoparticles separated from the supernatant? How? Which dissolution medium and apparatus, including stirring rate, etc. were used? What type of membrane was used and how good was the membrane to prevent release of the nanoparticles? Were each nanoparticles dispersed or wetted before starting the release experiment? And, since the encapsulation efficiency was not 100%, how did the release conduct with ensuring that it was merely from the nanoparticles?]</i> -	
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	- What were the sample pretreatment for SEM and TEM? What was the particle size analysis method? - - Were there any specific considerations when fitting each individual dissolution data to each mathematical model, zero-order, first-order, Higuchi, and Korsmeyer-Peppas equations? Results Please provide individual evidence to support each individual statements: - <i>In addition, these results indicate that carboxylate groups of alginate associate with ammonium groups of chitosan through electrostatic interactions to form the polyelectrolyte complexation.</i> - <i>ACaK produced egg-box models easily ...</i> - <i>the first interactions between alginate and chitosan of AKCa and KACa did not produce egg-box models....</i> - <i>ethanol was added into phosphate buffered saline to increase the solubility of curcumin, then the kinetic model could be reached gap clearly than others.</i>	Dry treatment. TEM measurements IR spectra and egg-box model effect.
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	Please explain the egg-box model and demonstrate with schematic diagram. Provide additional information, as listed: - validation of curcumin analysis including spectra check - sample sizes of each experiment, particle size analysis, encapsulation, release, etc. - standard deviations of each data points - particle size distribution and polydispersity index Discussion Discuss the novelty in comparison with other nano-curcumin. During preparations, did the author observe any aggregation tendency?	
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		