Supporting information for,

A Facile Mechanochemical Approach To Synthesizing Edible Food Preservation Coatings Based On Alginate/Ascorbic Acid-Layered Double Hydroxide Bio-Nanohybrids

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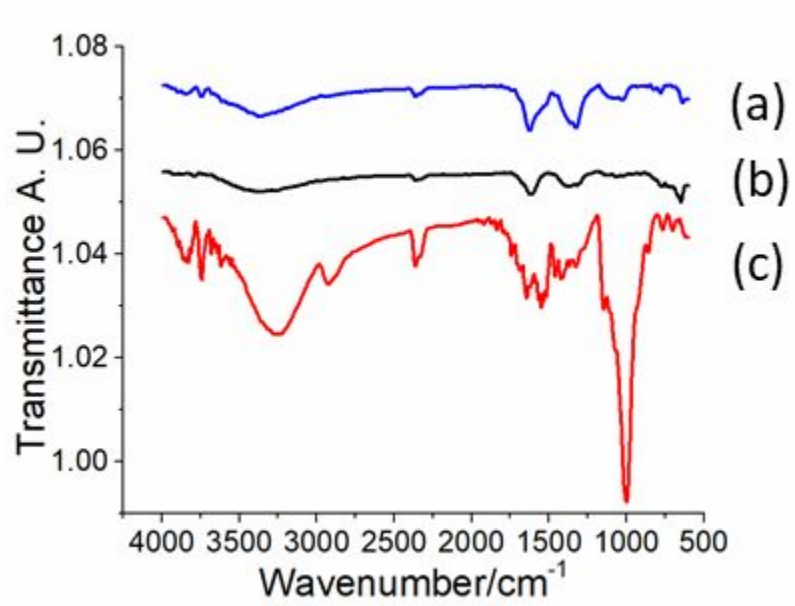

Figure S1. FTIR Spectra of (a) Alginate-AA-LDHs and glycerol coating solution (b) Mechanochemically ground AA-LDHs (c) Sodium Alginate and glycerol coating solution

Table S1.: Kinetic models used to analyze the release behavior of AA from AA-LDHs and Alginate coated AA-LDHs

Model	Equation	Reference
Avrami-Erofe'ev	$\ln(-\ln(C_t/C_0)) = n \ln(kd) + n \ln(t-t_0)$	[1]
Elovich	$1-C_t/C_0 = a \ln(t-t_0) + b$	[2]
Freundlich	$\ln(1-C_t/C_0) = \ln(k_d) + a \ln(t-t_0)$	[3]
First-order	$\ln(C_t/C_0) = -k_d(t-t_0)$	[4]

*C_0 is the amount of guest ascorbic acid in AA-LDHs at t=0 C_t is the amount of guest ascorbic acid in the AA-LDHs at time t and k_d is the rate of releasing while a,b and n are constants.[5]

Table S2: R^2 values of applied kinetic models

Kinetic Model	R^2 value for AA-LDHs	R^2 value for Alginate coated AA-LDHs

Avrami-Erofe'ev	0.98	0.94
Elovich model	0.73	0.77
Freundlich model	0.97	0.96
First order model	0.97	0.83

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