Supplementary data

Effect of Infrared Heat-moisture Treatment and Cooling Rate on the Material Properties of Amylose-lipid complex Nanomaterials

Njabulo Gideon Maphumulo, Mondli Abednicko Masanabo, Suprakas Sinha Ray M. Naushad Emmambux

Supplementary Table 1: Effect of infrared heat moisture treatment and cooling systems on the thermal properties of isolated ALC nanomaterials.

Sample	Time of IR-HMT (hours)	Onset temperature (T_o) (°C)	Peak temperature (T_p) (°C)	Conclusion temperature (T_c) (°C)
HH0	0	97.1 ± 0.3^{a}	103.3 ± 0.8^{a}	110.8 ± 0.2^{a}
HH1	1	97.4 ± 0.2^{a}	105.2 ± 0.7^{b}	112.3 ± 0.4^{a}
HH2	2	99.9 ± 0.2^{b}	108.9 ± 0.3^{de}	115.5 ± 0.6^{e}
HH3	3	99.9 ± 0.1^{b}	108.5 ± 0.5^{cd}	$115.1 \pm 0.^{1d}$
HR0	0	97.2 ± 0.4^{a}	103.5 ± 0.6^{a}	110.8 ± 0.2^{a}
HR1	1	103.8 ± 0.3^{cd}	109.1 ± 0.2^{de}	113.5 ± 0.4^{c}
HR2	2	99.2 ± 0.2^{b}	107.7 ± 0.1^{c}	113.7 ± 0.3^{c}
HR3	3	104.5 ± 0.2^{d}	109.7 ± 0.2^{ef}	113.9 ± 0.4^{c}
RF0	0	97.5 ± 0.7^{a}	103.4 ± 0.6^{a}	110.6 ± 0.3^{a}
RF1	1	104.0 ± 0.1^{d}	110.7 ± 0.1^{f}	117.0 ± 0.1^{f}
RF2	2	101.9 ± 0.1^{c}	109.9 ± 0.9^{ef}	117.8 ± 0.3^{g}
RF3	3	101.1 ± 0.1^{c}	110.9 ± 0.2^{f}	117.2 ± 0.2^{fg}
HN0	0	97.3 ± 0.2^{a}	103.4 ± 0.5^{a}	110.9 ± 0.2^{a}
HN1	1	102.4 ± 0.2^{c}	109.9 ± 0.1^{ef}	115.5 ± 0.1^{de}
HN2	2	100.4 ± 0.2^{b}	108.2 ± 0.2^{cd}	115.3 ± 0.1^{de}
HN3	3	104.7 ± 0.2^{d}	112.3 ± 0.1^{g}	117.7 ± 0.3^{g}

Values are mean ± standard deviation of triplicate experiments. Values of different letters a-g in the column are significantly different at $P < 0.05$.

HH means continuous infrared heat moisture treatment

HR means IR-HMT followed by cooling at room temperature

HF means IR-HMT followed by cooling in a refrigerator

HN means IR-HMT followed by rapid cooling using liquid nitrogen for 10 minutes and stored at -20 °C. The number that follows HH/HR/HR/HF/HN denotes the exposure time to HMT at 110 °C.

Supplementary Table 2: Effect of infrared heat moisture treatment on the relative crystallinity of the isolated ALC nanomaterials.

Sample name	Time of IR-HMT (hours)	Relative crystallinity (%)
HH0	0	13.7 ± 2.2^{ab}
HH1	1	11.5 ± 1.7^{a}
HH2	2	16.8 ± 0.5^{bcd}
HH3	3	16.0 ± 0.6^{bc}
HR0	0	14.1 ± 1.9^{ab}
HR1	1	15.2 ± 0.1^{b}
HR2	2	13.7 ± 1.2^{ab}
HR3	3	18.7 ± 1.4^{cde}
RF0	0	13.7 ± 2.2^{ab}
RF1	1	20.5 ± 1.1^{e}
RH2	2	21.7 ± 1.20^{e}
RH3	3	20.9 ± 0.9^{e}
HN0	0	13.9 ± 2.1^{ab}
HN1	1	19.8 ± 1.1^{e}
HN2	2	15.9 ± 0.9^{bc}
HN3	3	21.1 ± 0.3^{e}

Values are mean ± standard deviation of triplicate experiments. Means with different letters in the column are significantly different at $P<0.05$.

HH means continuous infrared heat moisture treatment

HR means IR-HMT followed by cooling at room temperature

HF means IR-HMT followed by cooling in a refrigerator

HN means IR-HMT followed by rapid cooling using liquid nitrogen for 10 minutes and stored at -20 ℃. The number that follows HH/HR/HR/HF/HN denotes the exposure time to HMT at 110 ℃.