Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

On-demand, magnetic hyperthermia-triggered drug delivery: optimisation for the GI tract- Supporting information

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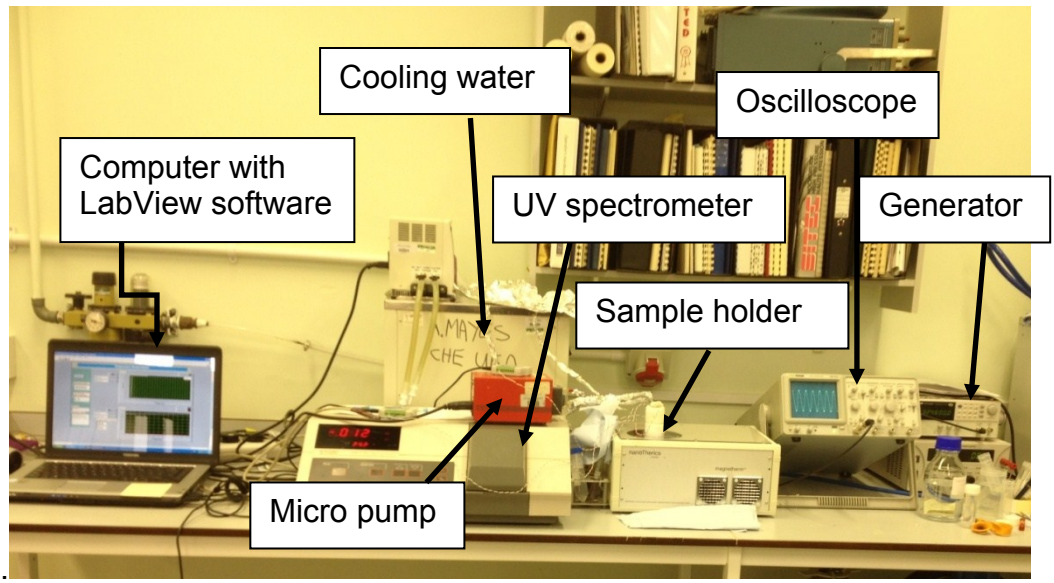

Figure S1.1:

The experimental setup showing the arrangement of instruments and location of the sample holder of the MagneTherm™ hyperthermia instrument.

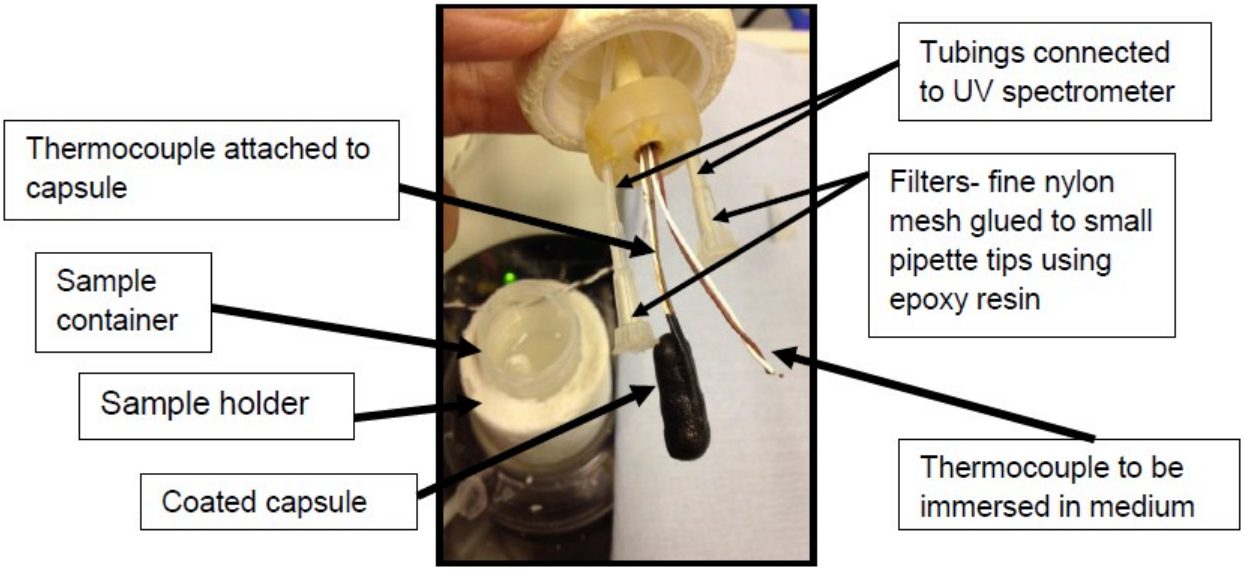

Figure S1.2:

The sample holder arrangement showing the two thermocouples connected to the coated capsule and the medium solution.

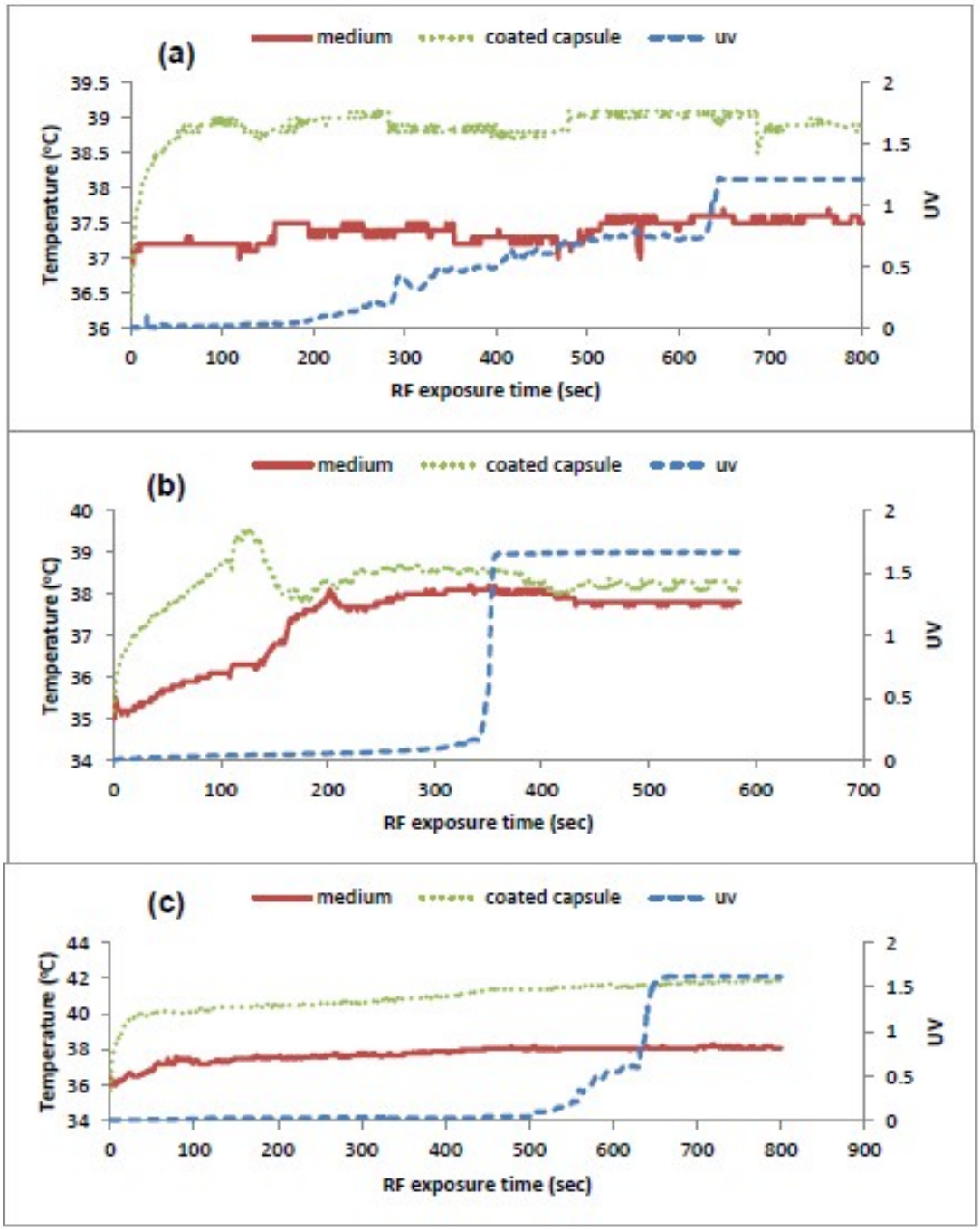

Figure S2:

The curves of temperatures with exposure time resulting from hyperthermia heating by IONs at 10 % by weight in (a) mixture of fatty acid C12 :C14 (40:60/w:w), (b) eicosane and (c) mixture of eicosane and docosane (40:60/w:w) exposed to RF at 521.3 kHz (24 mT). The dotted (green) and solid (red) curves are the heating temperatures at the capsule surface and in the dissolution medium, respectively. The broken (blue) curve is the variation of the UV absorbance, showing the release of drug with exposure time.

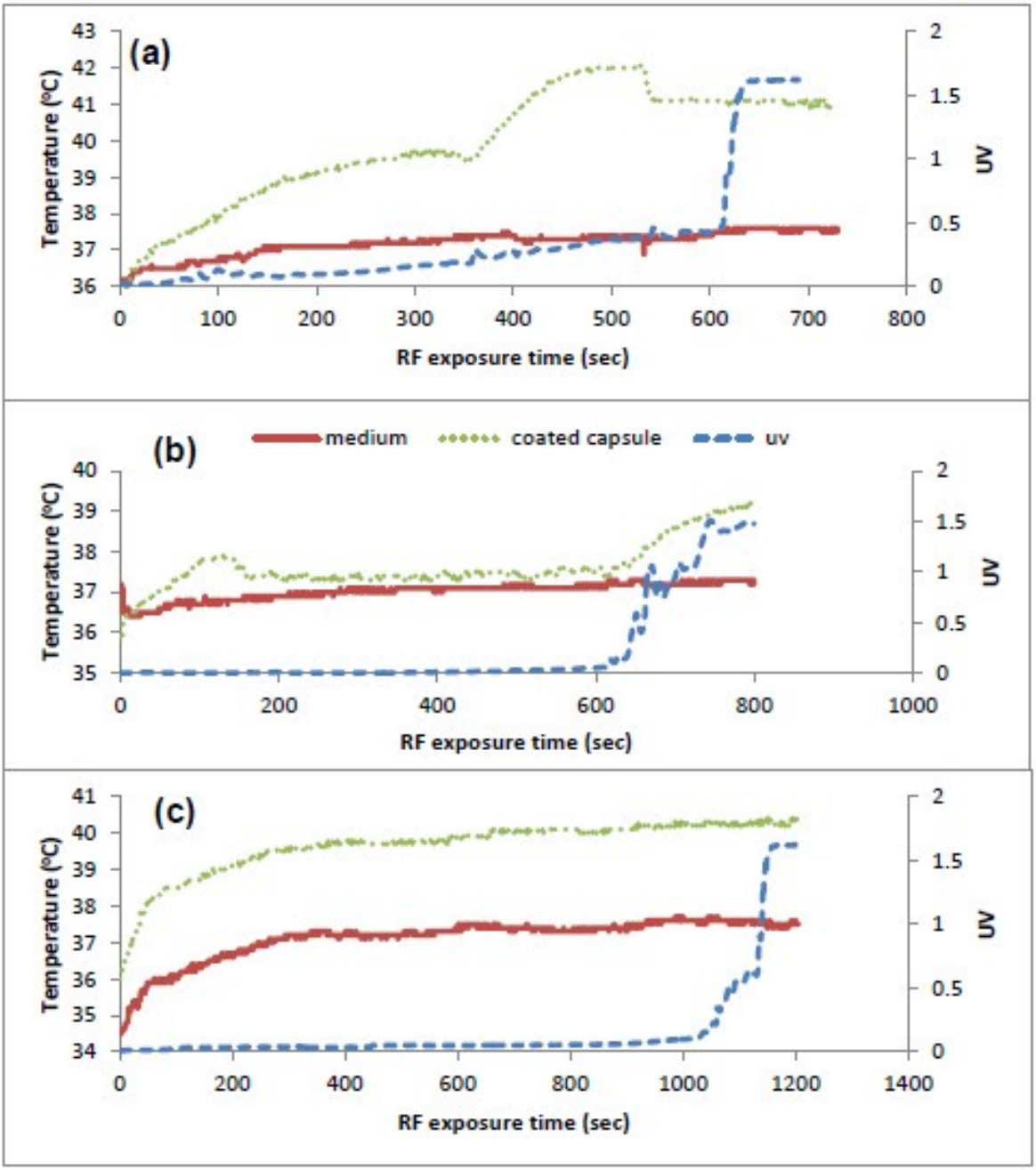

Figure S3:

The curves of heating temperatures with exposure time resulting from hyperthermia heating by IONs at 10 % by weight in (a) mixture of fatty acid C12 :C14 (40:60/w:w), (b) eicosane, and (c) mixture of eicosane and docosane (40:60/w:w) exposed to RF at 330.3 kHz. The dotted (green) and solid (red) curves are temperature at the capsule and of the dissolution medium, respectively. The broken (blue) curve is the variation of the UV absorbance of the released drug with exposure time.

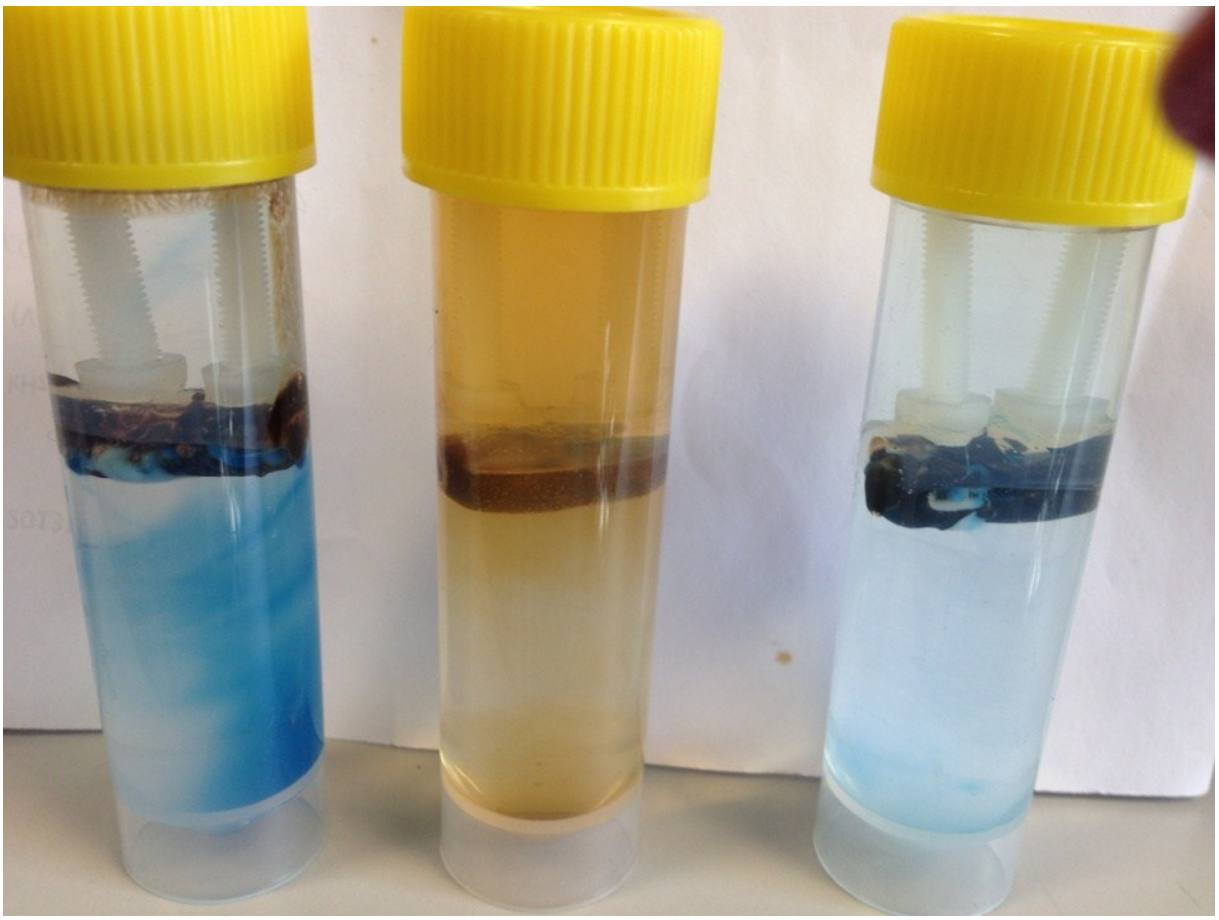

Figure S4:

The melting of the coating and the diffusion of dye into the media at the completion of hyperthermic heating for: (left) eicosane (centre) mixture of fatty acids, (right) mixture of eicosane and docosane as the coating materials.

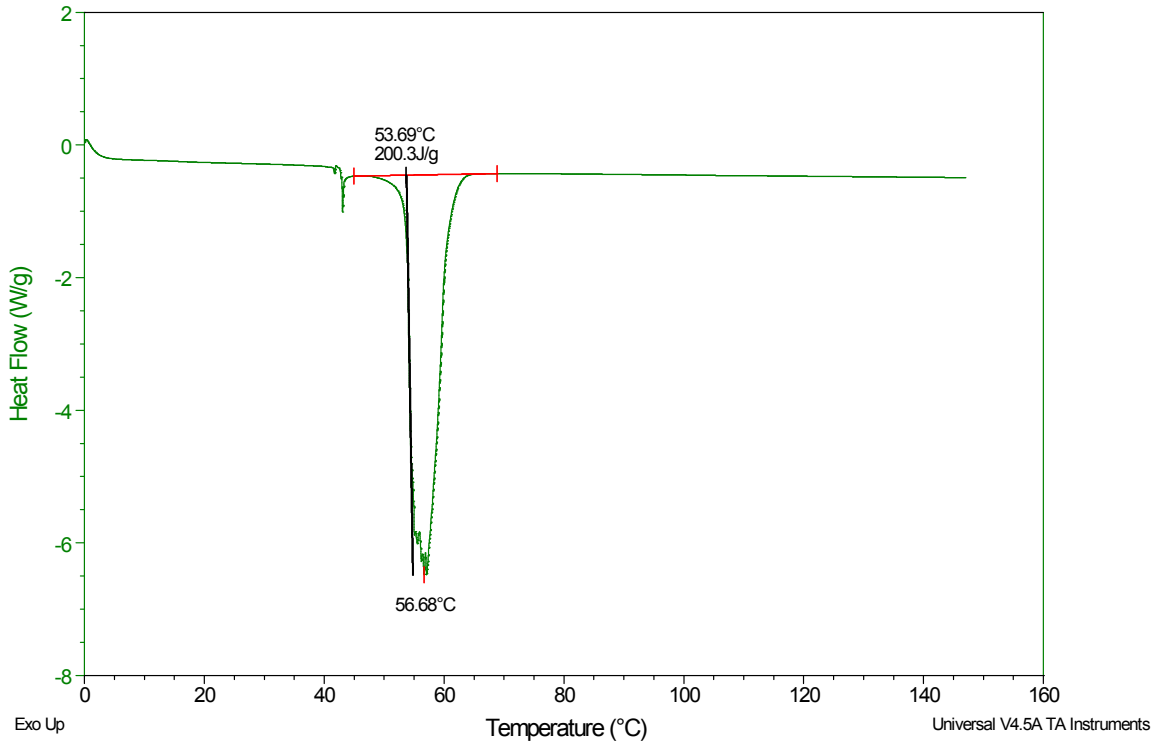

Figure S5.1:

DSC curve of myristic acid.

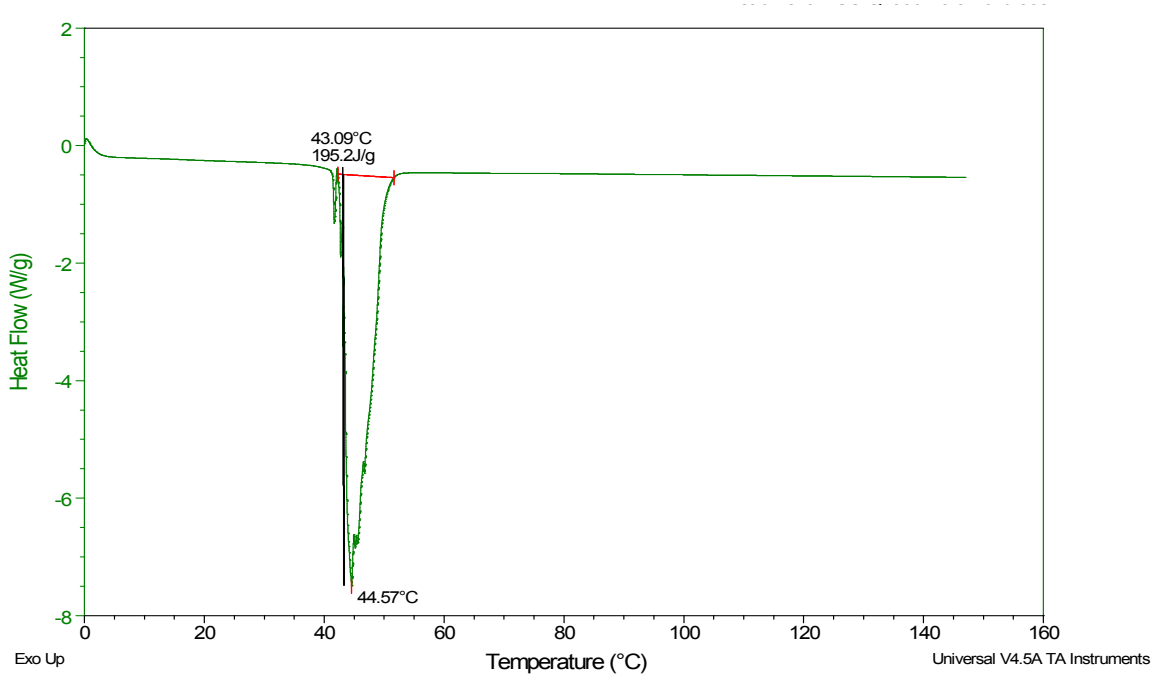

Figure S5.2:

DSC curve of lauric acid.

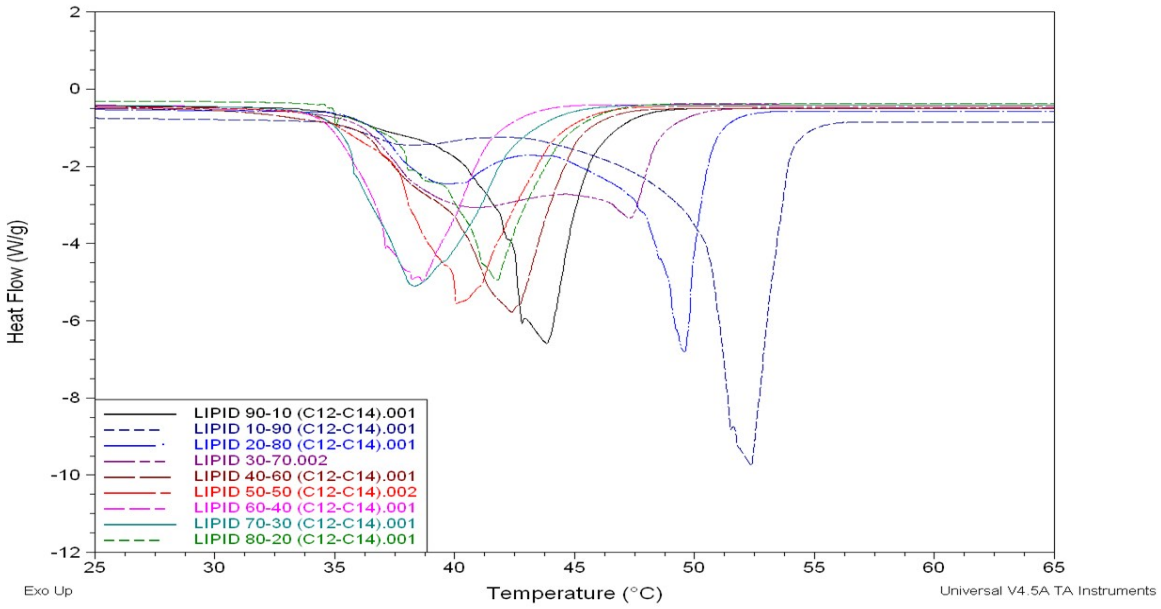

Figure S5.3:

DSC curves of fatty acid mixtures comprising lauric and myristic acids.

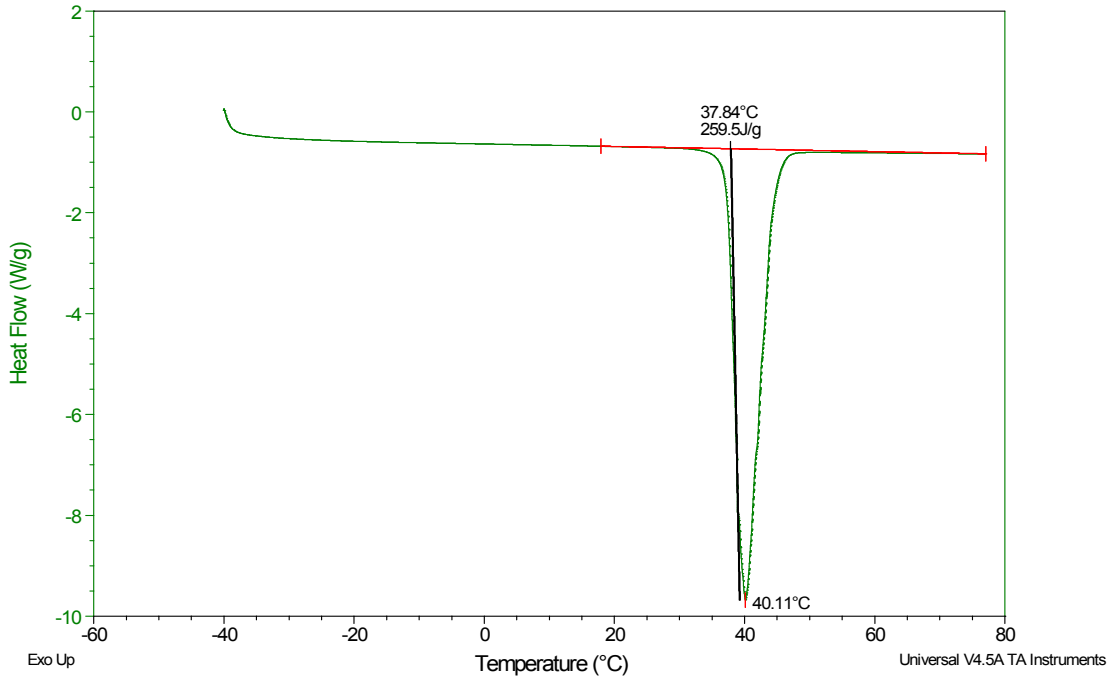

Figure S5.4:

DSC curve of eicosane.

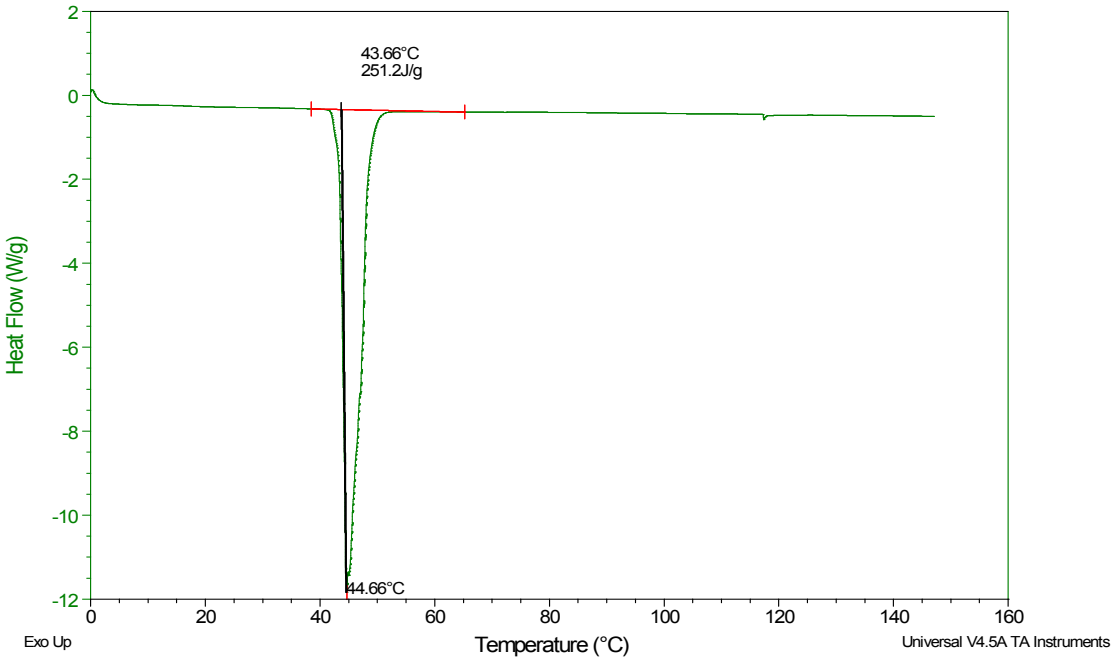

Figure S5.5:

DSC curve of docosane.

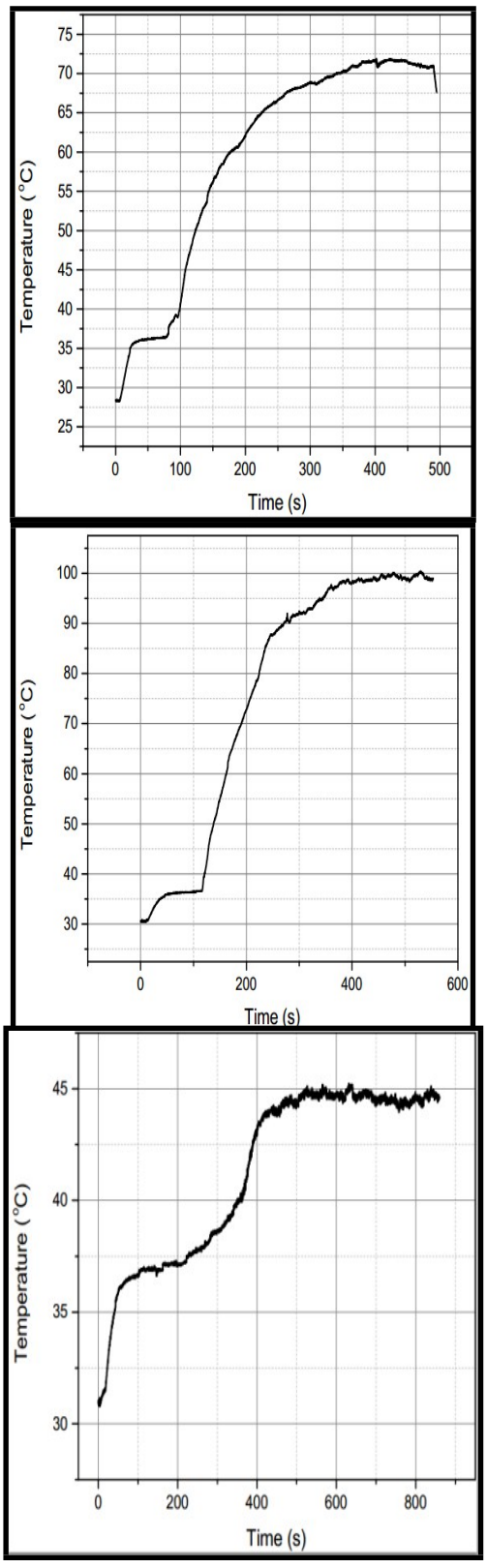

Figure S6:

Capsule melting curves in air taken from thermal imaging camera stills over the period of irradiation: (top): eicosane, (middle): eicosane:docosane (40:60 w/w) and fatty acid mixture (40:60 w/w).