Interactions of bile salts with a dietary fibre, methylcellulose, and impact on lipolysis

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Supporting information

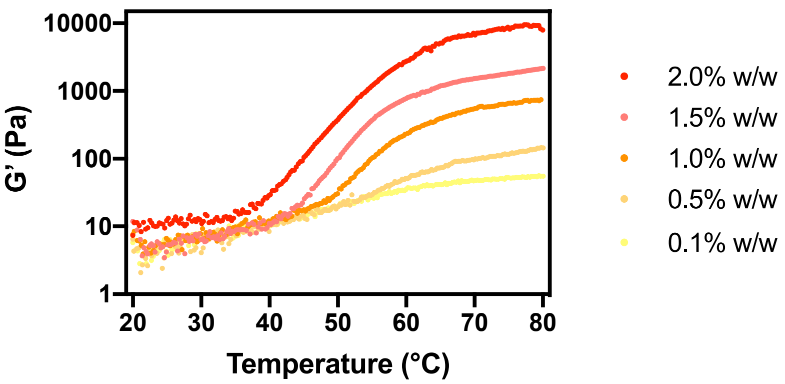

Figure S1: Temperature-dependent evolution of the storage modulus (*G'*) obtained from dynamic temperature sweeps, on MC aqueous solutions prepared at different concentrations (0.1, 0.5, 1.0, 1.5 and 2.0% w/w). *G'* dominates over *G"* at all concentrations and temperatures; *G"* was therefore omitted for clarity.

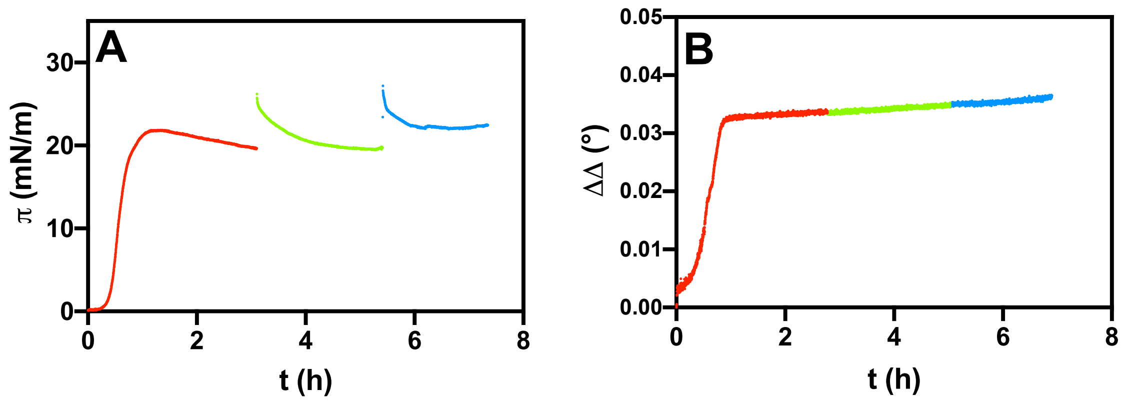

Figure S2: Time-dependent evolution of (A) the surface pressure (π) measured in a Langmuir trough, and (B) phase shift ($\Delta\Delta(t) = \Delta(t) - \Delta_0$) measured by ellipsometry, upon successive injections of MC: (—) 0.5×10^{-1}‰ w/w, (—) 0.25‰ w/w, (—) 0.5‰ w/w, into the aqueous subphase (at 23 ± 2°C).

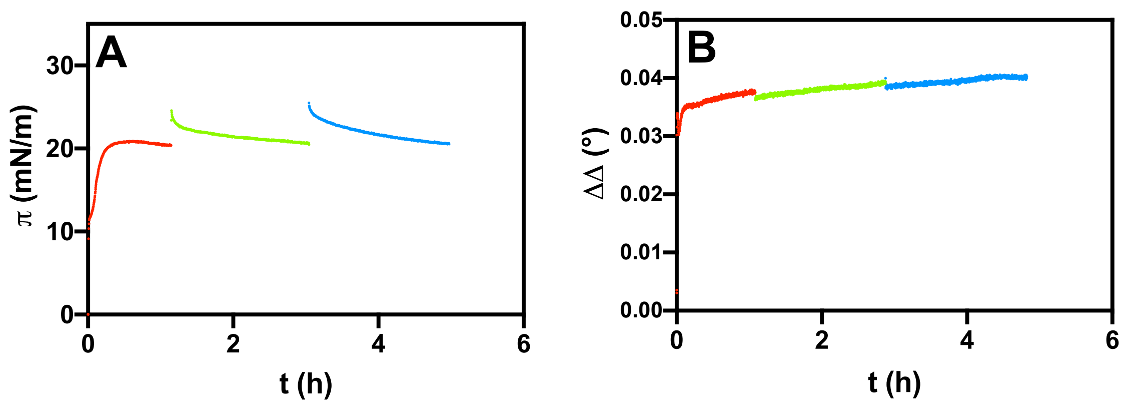

Figure S3: Time-dependent evolution of (A) the surface pressure (π) measured in a Langmuir trough, and (B) phase shift ($\Delta\Delta(t) = \Delta(t) - \Delta_0$) measured by ellipsometry, upon successive injections of MC: (—) 0.5×10^{-2}‰ w/w, (—) 0.25×10^{-1}‰ w/w, (—) 0.5×10^{-1}‰ w/w, into the aqueous subphase (at 23 ± 2°C).

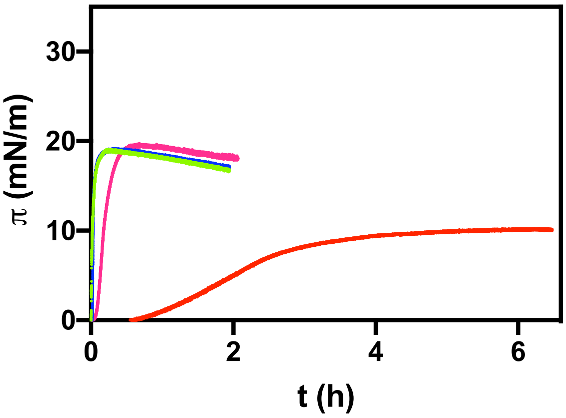

Figure S4: Time-dependent evolution of the surface pressure (π) measured in a Langmuir trough, upon injection of MC into the aqueous subphase, at varying concentrations: (—) 0.5×10^{-3}‰ w/w, (—) 0.5×10^{-2}‰ w/w, (—) 0.5×10^{-1}‰ w/w, (—) 0.5‰ w/w (at 23 ± 2°C). Each experiment was reproduced twice, and the average measurement was selected for each BS at each concentration.

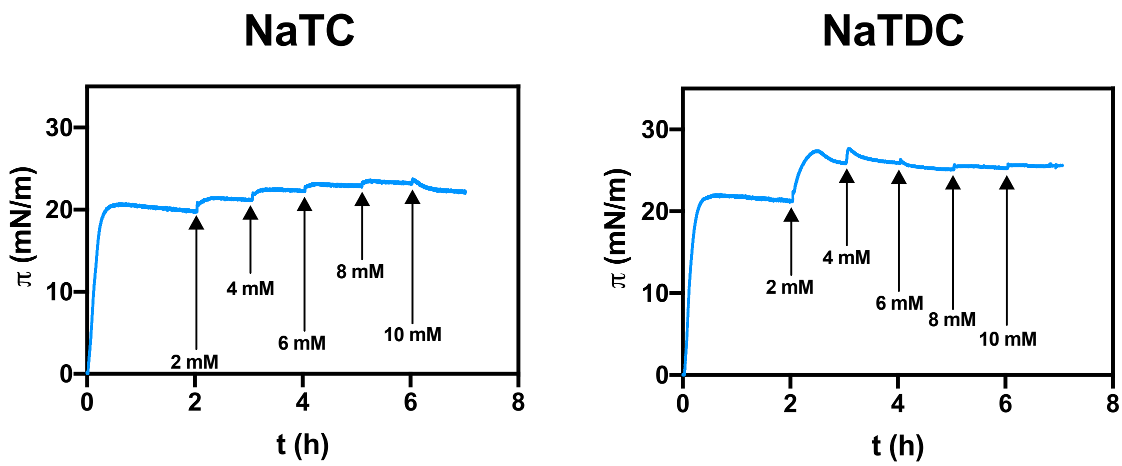

Figure S5: Time-dependent evolution of the surface pressure (π) measured in a Langmuir trough, upon successive injections of BS into the aqueous subphase: NaTC, NaTDC (at 23 ± 2°C). The first increase in surface pressure corresponds to the adsorption of MC at the air/water interface, which was added into water at a concentration of 0.5×10^{-2}‰ w/w (π_{MC} = 18 ± 2 mN/m). Each addition of BS is shown by an arrow, together with the corresponding BS concentration achieved in the subphase. Each experiment was reproduced twice, and a representative measurement was selected for each experiment.

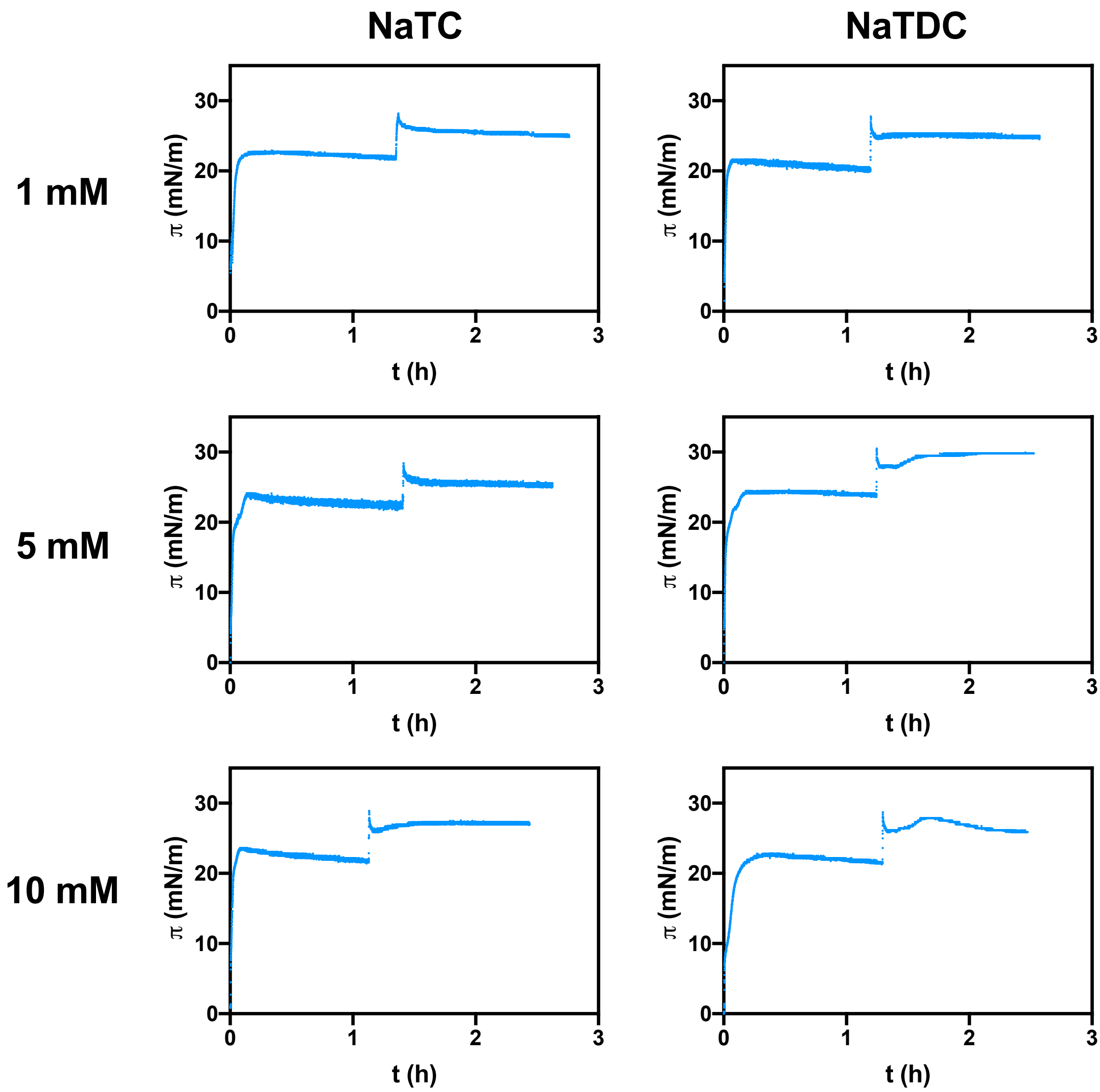

Figure S6: Time-dependent evolution of the surface pressure (π) measured in a Langmuir trough, upon injection of varying concentrations: 1, 5, 10 mM, of BS: NaTC, NaTDC, into the aqueous subphase (at 23 ± 2°C). The first increase in surface pressure corresponds to the adsorption of MC at the air/water interface, which was added into water at a concentration of 0.5‰ w/w (π_{MC} = 21 ± 1 mN/m). Each experiment was reproduced at least twice, and a representative measurement was selected for each BS at each concentration.

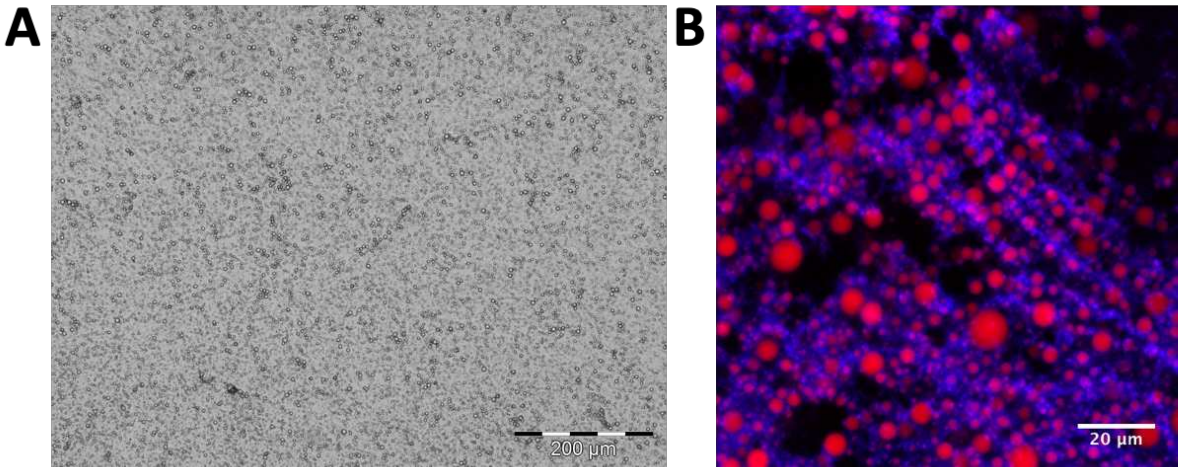

Figure S7: Characterisation of MC-stabilised emulsion droplets microstructure by (A) optical (scale bar: 200 µm) and (B) confocal (scale bar: 20 µm) microscopy. MC-stabilised emulsion was made up of 0.5% MC and 15% sunflower oil. The confocal micrograph shows the lipid droplets (stained in red with Nile red) surrounded by MC (stained in blue with calcofluor) present as a network in the bulk (B).

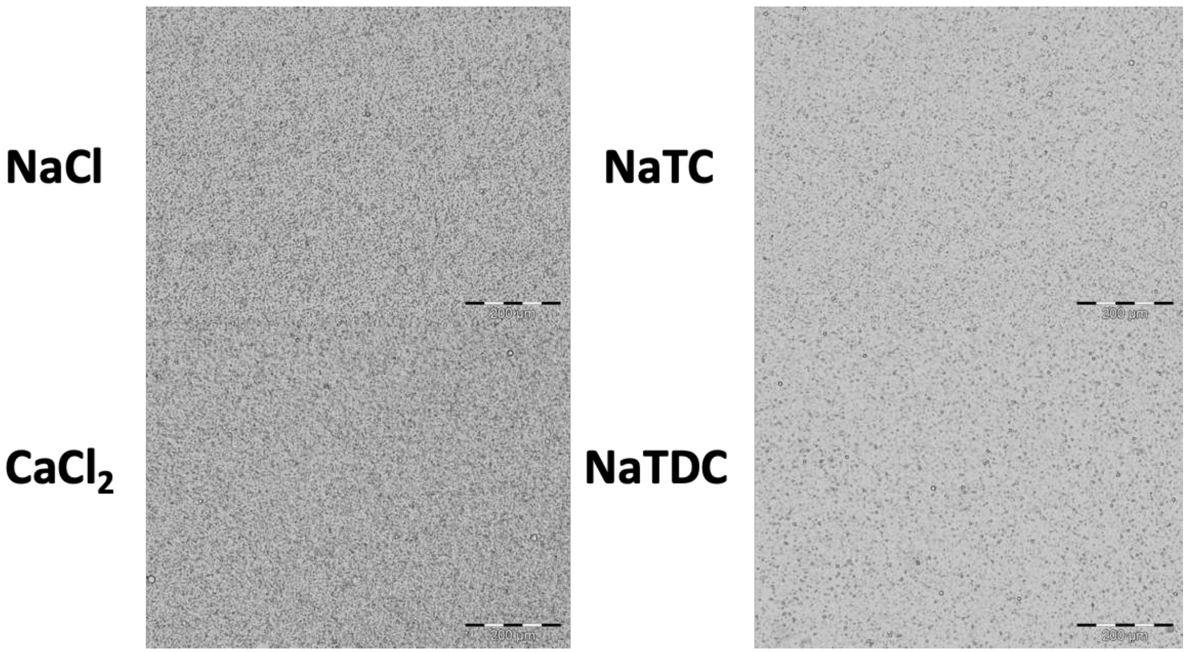

Figure S8: Impact of the different digestive fluid components: NaCl, $CaCl_2$ and BS (NaTC, NaTDC) (used individually), on the microstructure of MC-stabilised emulsion droplets, 60 min after mixing (at 37°C). MC-stabilised emulsion was made up of 0.5% MC and 15% sunflower oil. The scale bar is 200 µm.

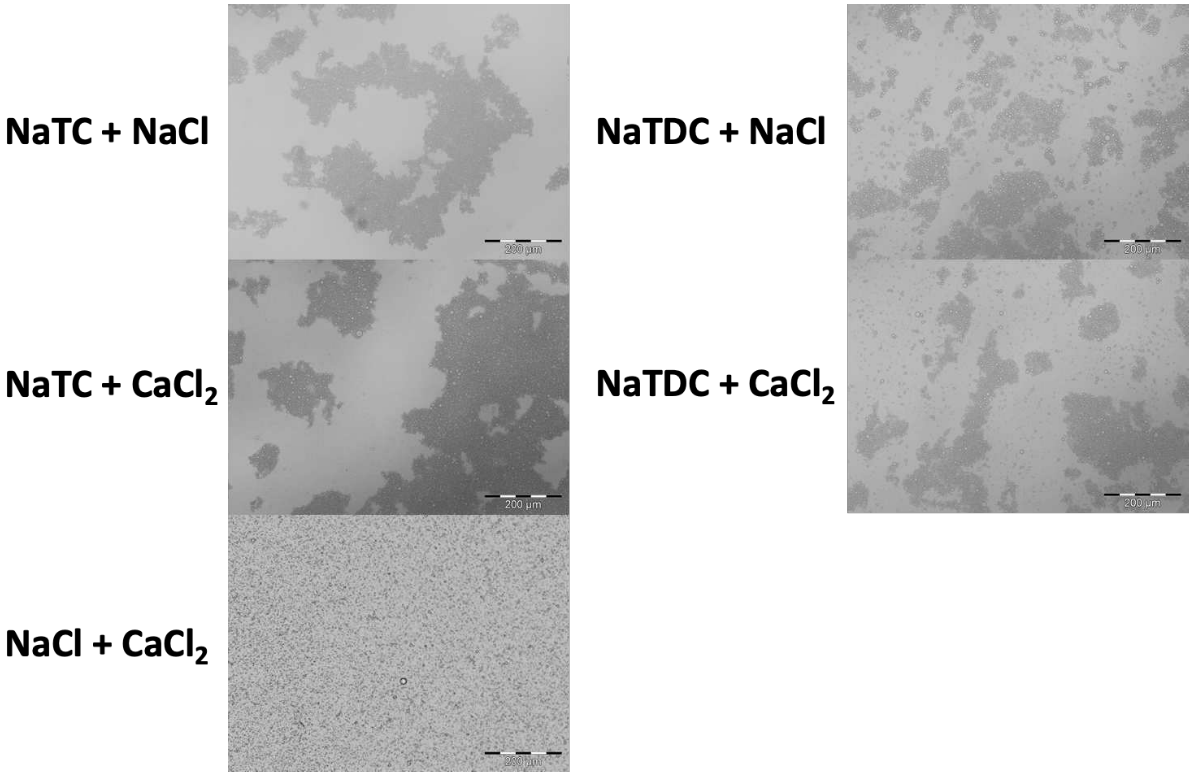

Figure S9: Impact of the different digestive fluid components: NaCl, $CaCl_2$ and BS (NaTC, NaTDC) (used in combination), on the microstructure of MC-stabilised emulsion droplets, 60 min after mixing (at 37°C). MC-stabilised emulsion was made up of 0.5% MC and 15% sunflower oil. The scale bar is 200 µm.