Electronic Supplementary Material (ESI) for Food & Function.

Supporting Information

Lipid digestion of oil-in-water emulsions stabilized with low molecular weight surfactants

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Proton NMR

The ^{1}H NMR spectrum was collected on a Bruker AVANCE III 600 MHz spectrometer (Bruker, Milton, ON, Canada) equipped with a 5 mm TCI cryoprobe (Bruker, Milton, ON, Canada). A 20 uL sample of purified *sn*-2 glycerol monooleate (2-GMO) was dissolved in 600 uL $CDCl_3$ (99.9%, Cambridge Isotype Laboratories, Tewksbury, MA, USA) and temperature was regulated at 298 ± 1 K. The spectrum was referenced to residual internal $CHCl_3$ (δ 7.26). Purified 2-GMO: ^{1}H NMR ($CDCl_3$, 600 MHz): δ 5.34 (m, 2H), 4.92 (quint, 1H, J = 4.7 Hz), 3.83 (m, 4H), 2.37 (t, 2H, J = 7.6 Hz), 2.01 (m, 4H), 1.64 (quint, 2H, J = 7.4 Hz), 1.28 (m, 36.6H), 0.88 (t, 12.6H, J = 7.0 Hz). The inflated integrations of 36.6H and 12.6H are due to residual heptane in the sample (Figure S1). These assignments are consistent with those reported for *sn*-2 monoglycerides from soybean oil [83].

The region from 5.25 to 3.5 ppm of the ^{1}H NMR spectrum (Figure S2) included intense peaks attributed to glycerol backbone protons of 2-GMO and low intensity peaks corresponding to the glycerol backbone protons of diolein and *sn*-1/3 glycerol monooleate. Other low intensity peaks in this region included a multiplet corresponding to a CH_2 group from the ethyl oleate by-product at 4.11 ppm and a peak at 4.02 ppm attributed to an unknown impurity, which was also present in the ^{1}H NMR of the pure triolein starting material (data not shown). By integrating all the peaks in this region, the purity of 2-GMO was calculated relative to all the glycerol-containing compounds and found to be ~97 mol %.

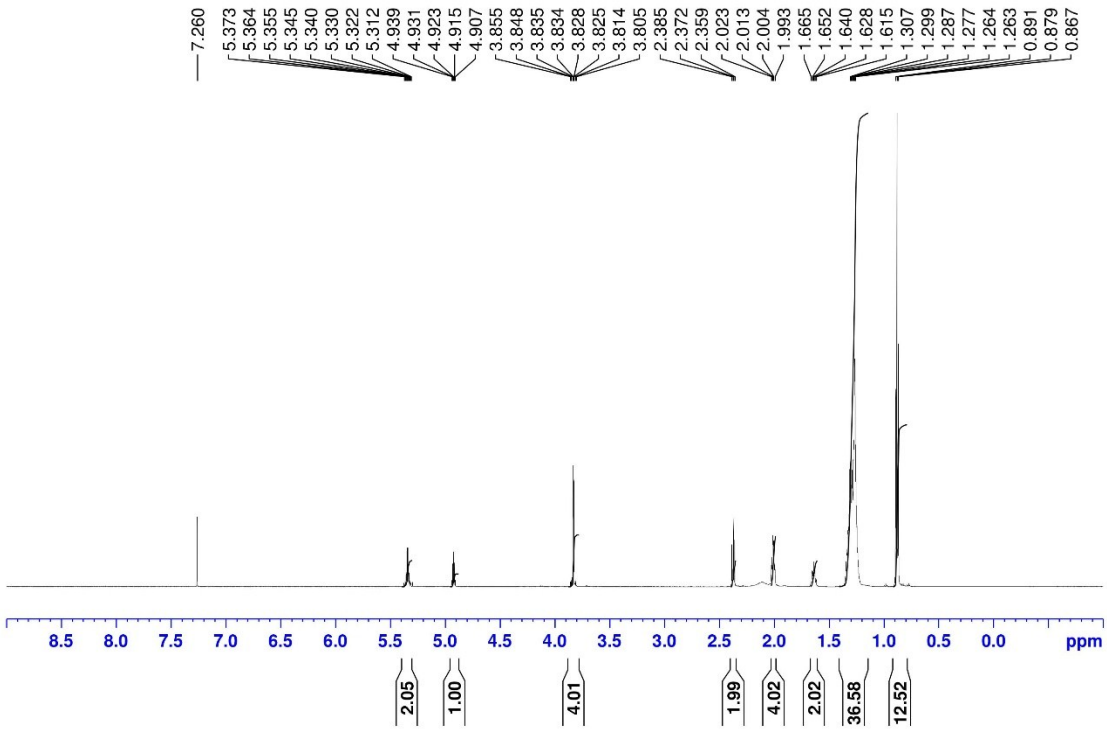

Figure S1. ^{1}H NMR spectrum ($CDCl_3$, 600 MHz) of 2-GMO.

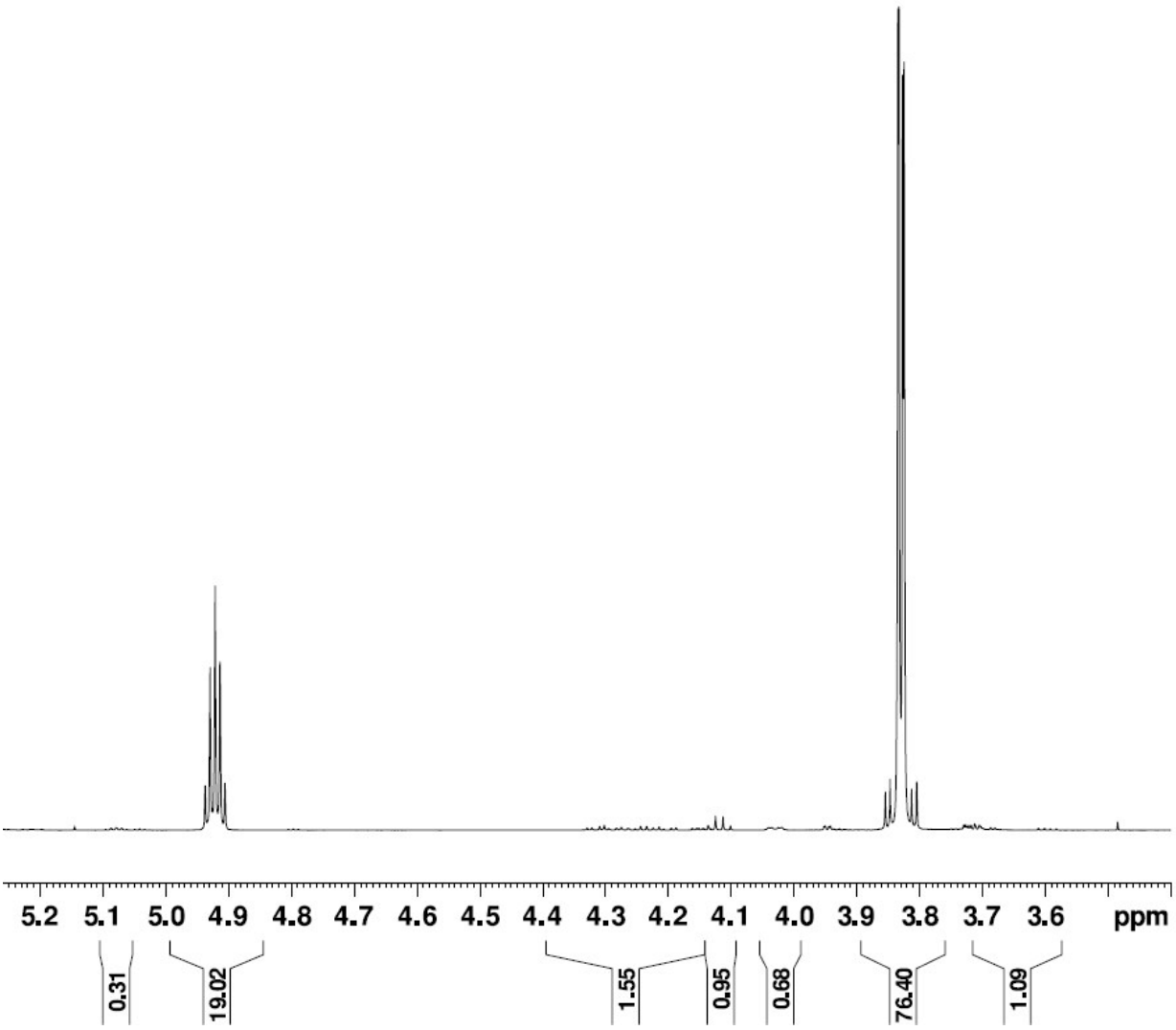

Figure S2. ^{1}H NMR spectrum ($CDCl_3$, 600 MHz) of the glycerol backbone region of 2-GMO.

HPLC Calibration Curves

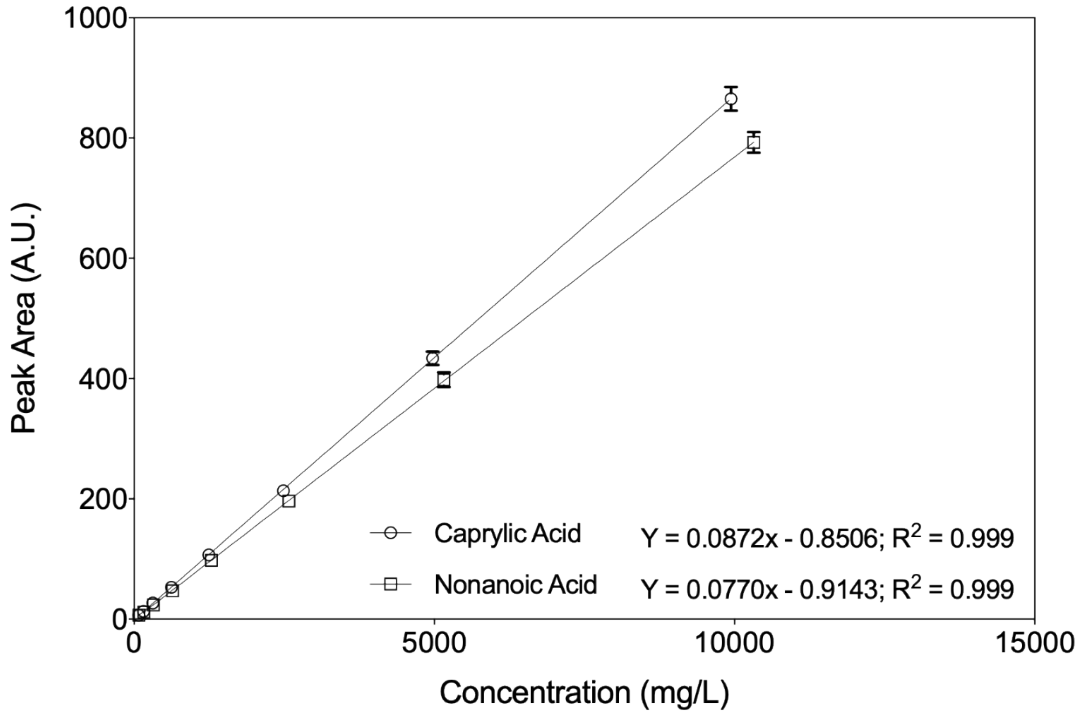

Figure S3. Calibration curves for nonanoic acid and caprylic acid in acetonitrile-water (60:40) over a concentration range of 78-10000 mg/L using HPLC-DAD with absorbance set to 210nm.

Area Under the Curve

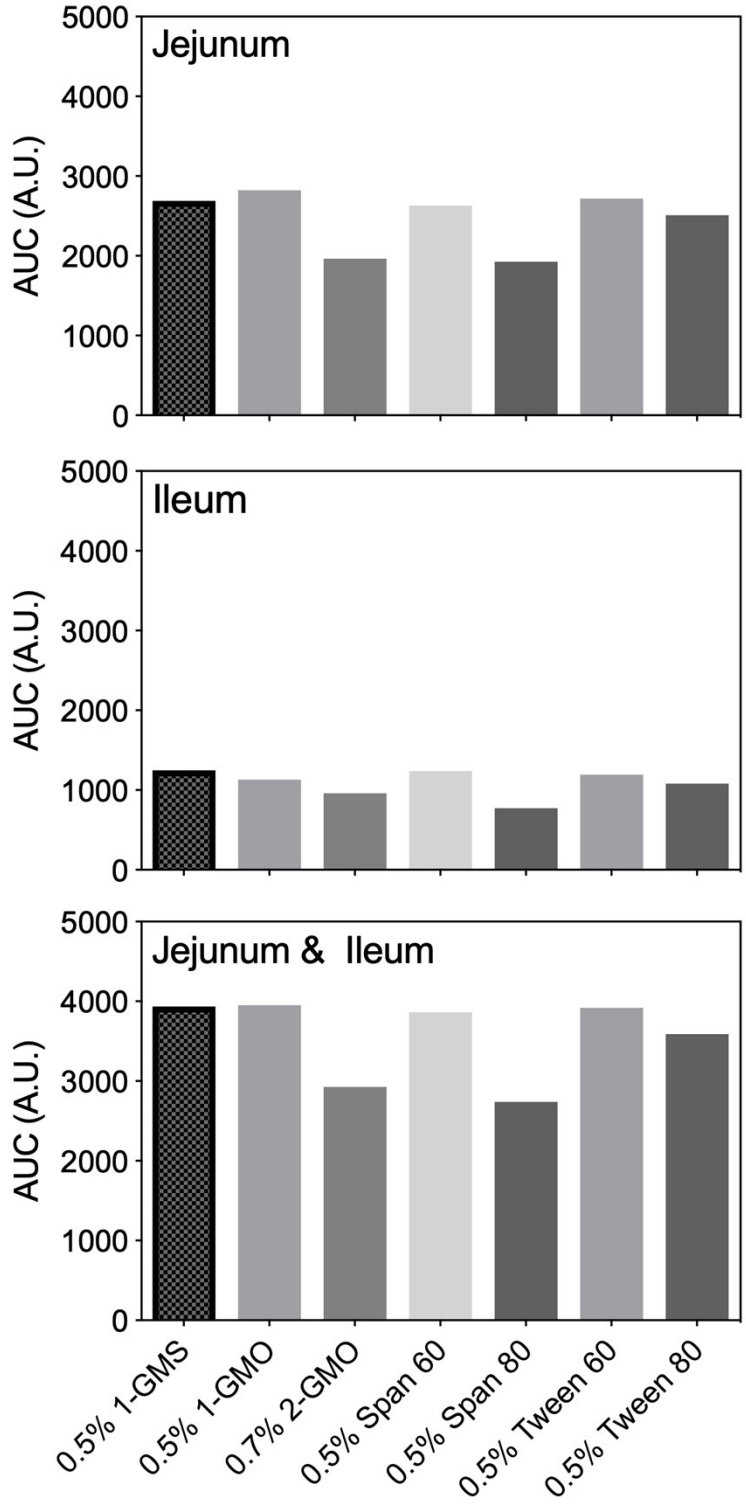

Figure S4. Area under the curve (AUC, expressed in A.U.) calculated from the absolute bioaccessibility values of caprylic acid over the 5 h digestion period using the trapezoid method.