Electronic Supplementary Material (ESI) for Green Chemistry.

Electronic Supporting Information

A platform for more sustainable chitin films from an ionic liquid process

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FTIR

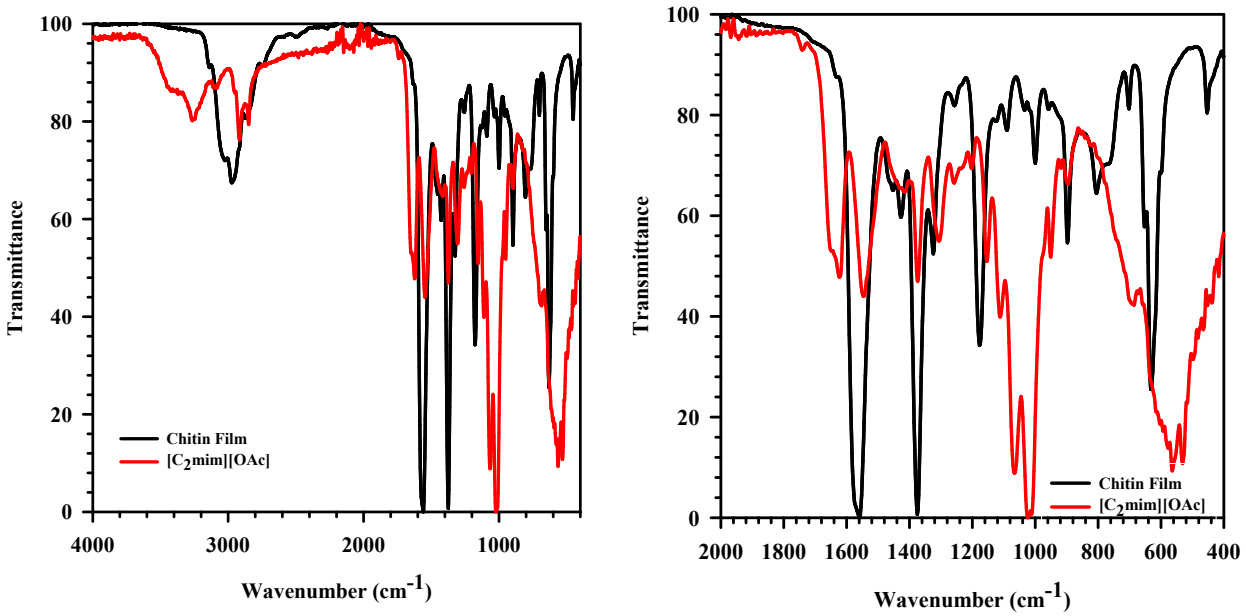

Figure S1. FTIR spectra of chitin film (red) and [C_2mim][OAc] (black), the full spectrum is on the left, and 2000-400 cm^{-1} is on the right.

Thermogravimetric analysis (TGA)

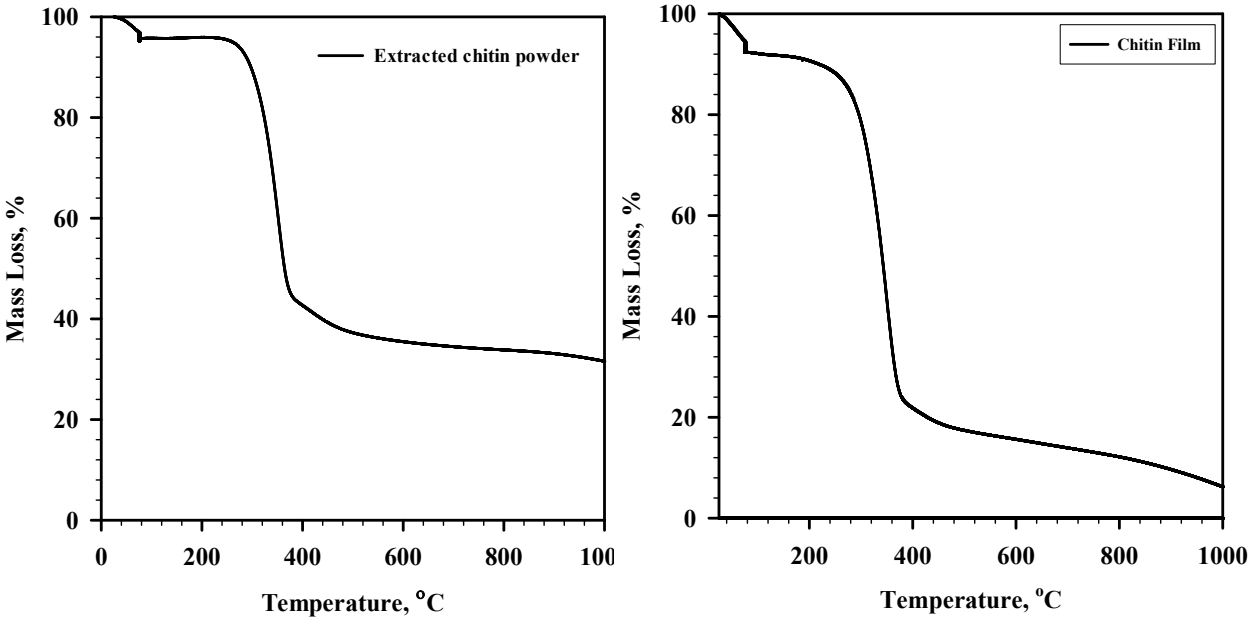

Figure S2. TGA data for extracted chitin and press dried chitin film.

Tensile Strength

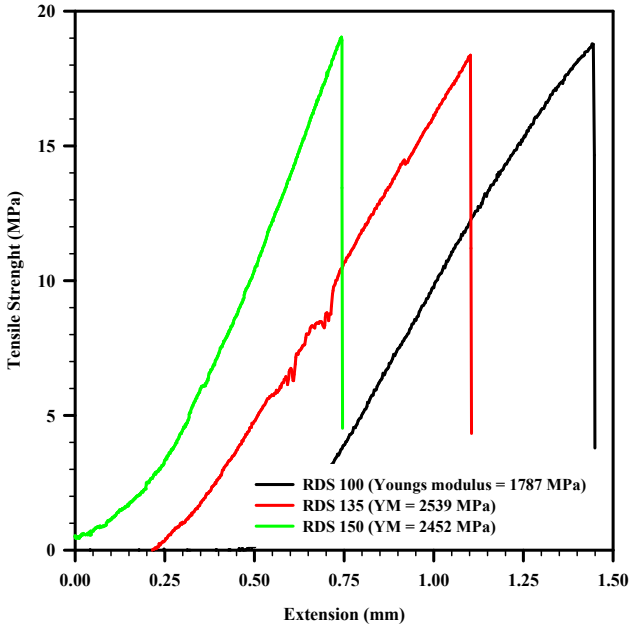

Figure S3. Representative tensile curves for press dried chitin films (RDS 100, 135, and 150).

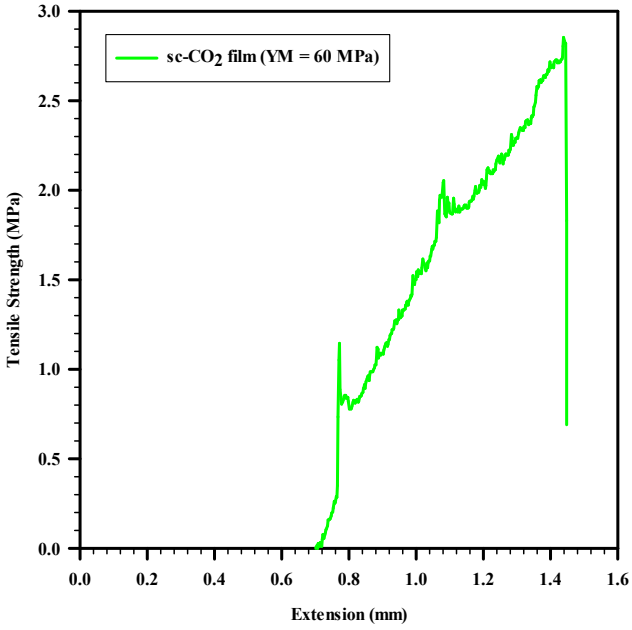

Figure S4. Representative tensile curve for RDS 135 sc-CO_2 dried film.

Nuclear Magnetic Resonance Spectra ^{1}H NMR (500 MHz, DMSO-d_6).

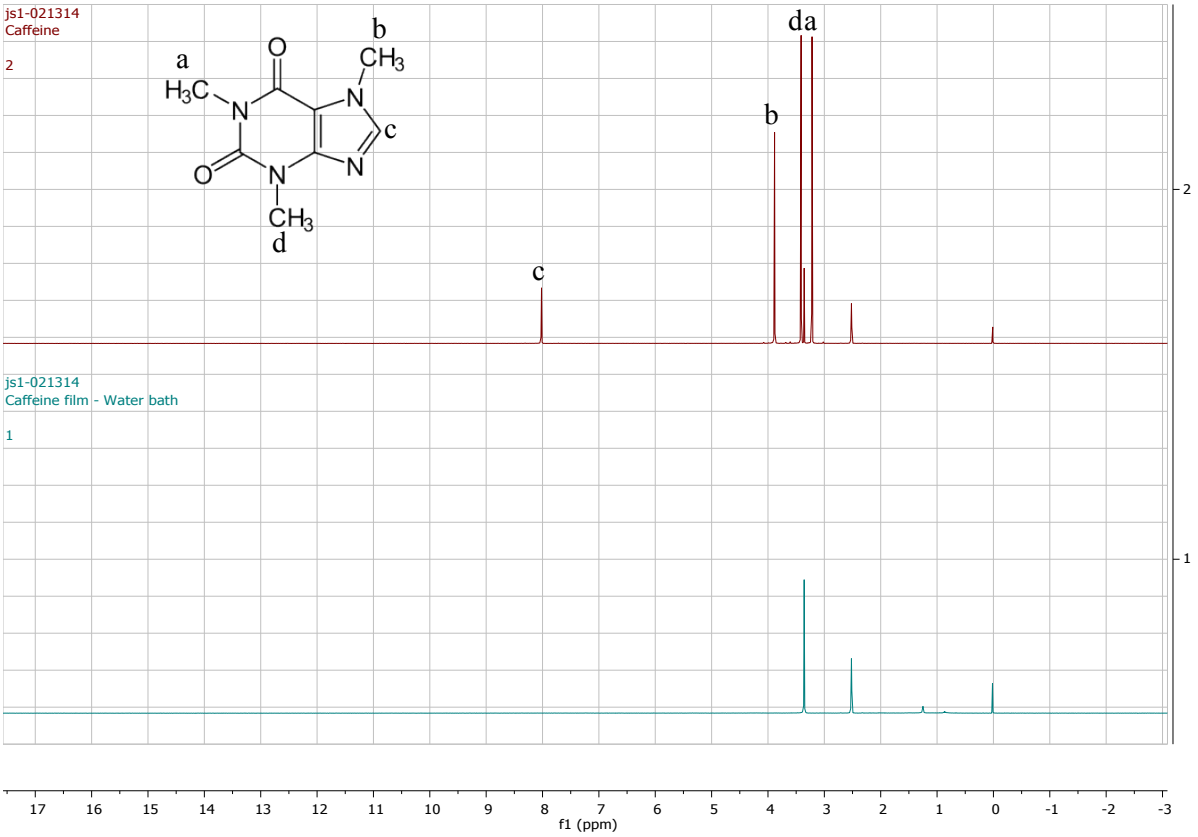

Figure S5. ^{1}H NMR (500 MHz, DMSO-d_6) for caffeine (top), and ^{1}H NMR (500 MHz, DMSO-d_6) for the solution of the washed film.

The chitin film was loaded with caffeine (as described in section **3.9 Drug Loading and Release** of the main manuscript) and then quickly rinsed with water to remove caffeine from the surface. To check if any caffeine was still present in the film, 5 mg of film was cut and ground with a mortar and pestle. The ground material was then placed into a 2 mL vial fitted with a small stir bar and 1 mL of DMSO-d_6 was added. The solution was left to stir overnight at room temperature, then filtered using a PTFE syringe filter (13 mm diameter and 0.45 um pore size, VWR, Radnor, PA, USA) to remove the chitin. The ^{1}H NMR of the solution was recorded and the spectrum was compared with the 1H NMR spectrum of pure caffeine in DMSO-d_6.