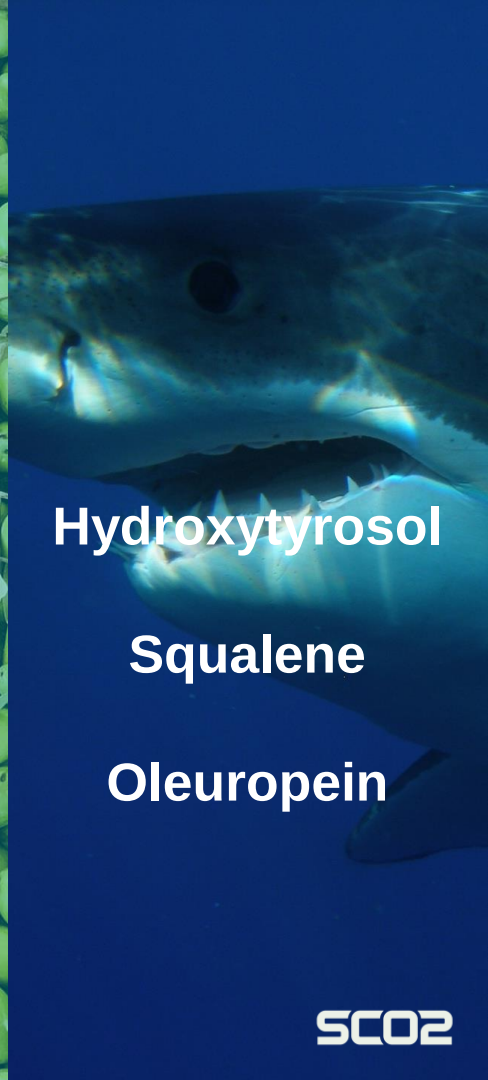
Unlocking the Next Generation of Ingredients with Industrial-Scale Supercritical CO_2

What if every molecule had value?

150,000 Tons

20%

60,000 Tons



Hydroxytyrosol

Squalene

Oleuropein

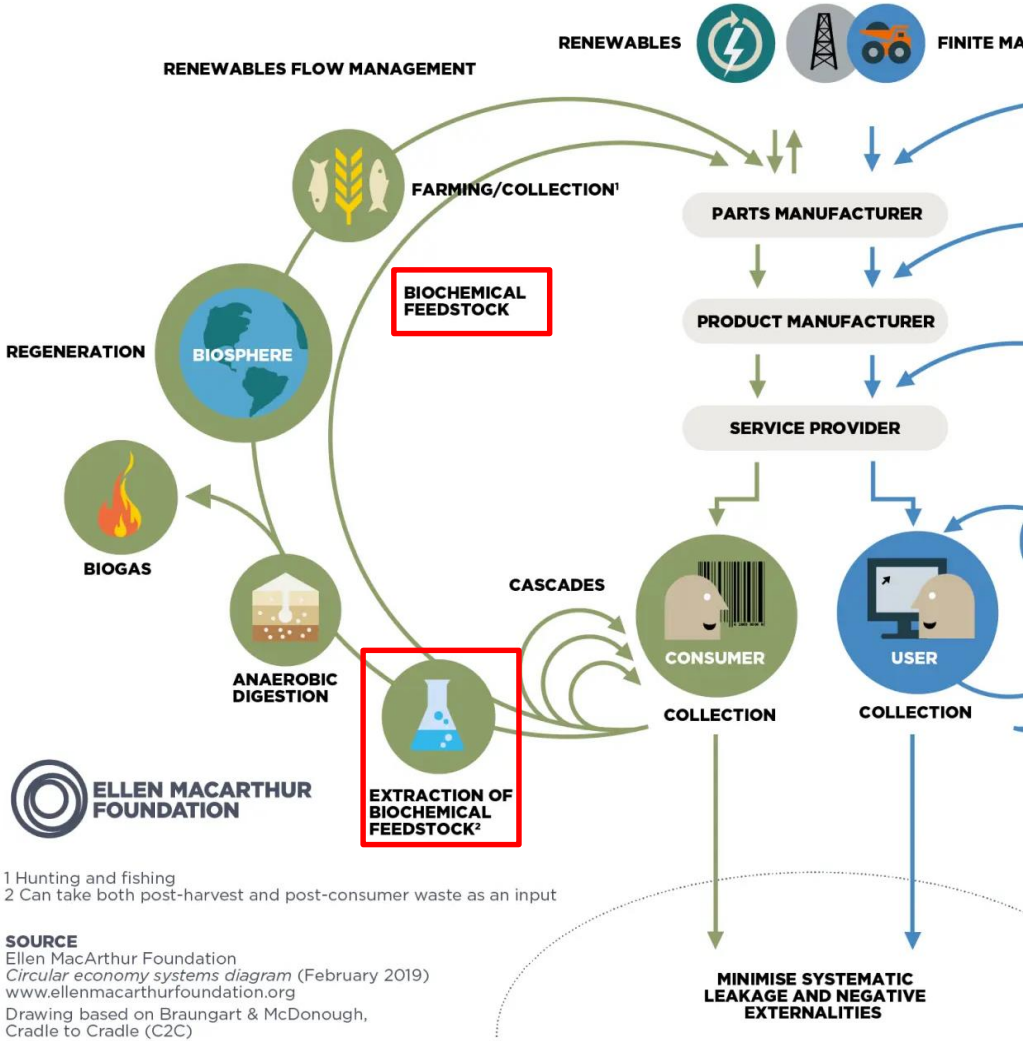
SCO2

Circular Economy

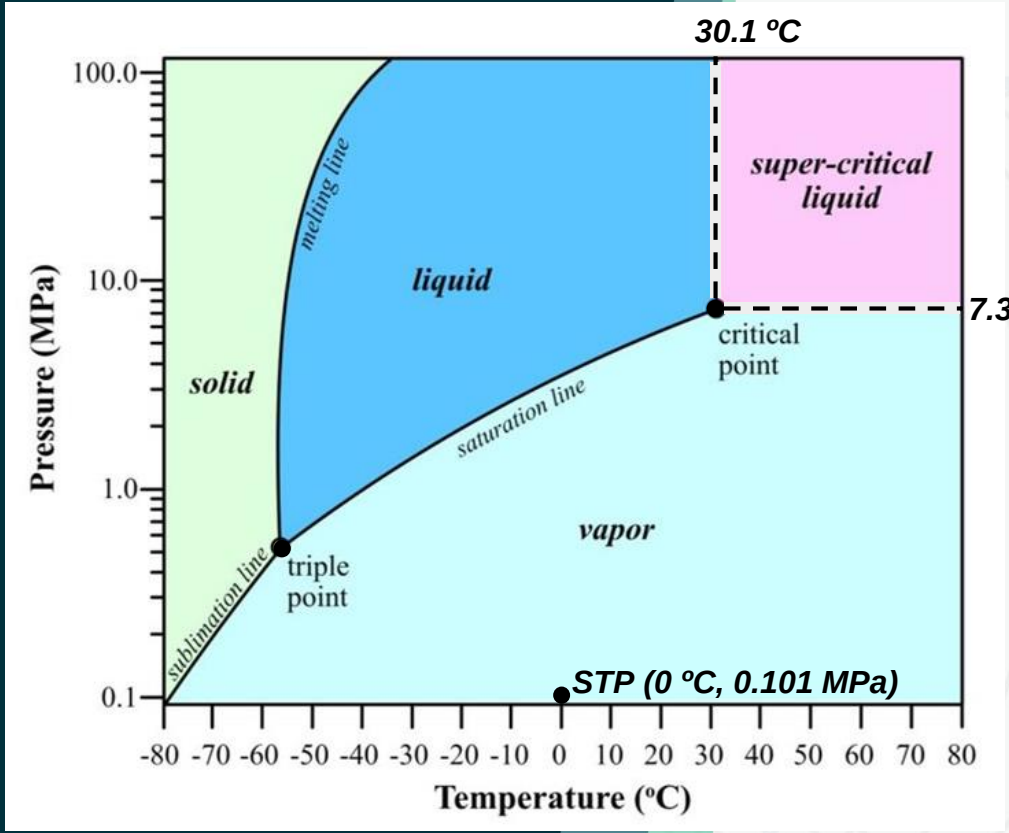
Eliminate waste and pollution

Circulate products and materials at their highest value

Regenerate nature



Supercritical CO_2?



WHAT IS IT?

Beyond a solid, liquid, or gas. A state that exhibits gas-like diffusivity and liquid-like solvent power.

WHAT CAN IT DO?

Penetrates cells to supersaturate them with high-energy CO_2.

Lifts and carries non-polar and slightly-polar molecules from biomass.

Releases molecules as the energy drops

Extracted compounds and the processed biomass are sterilized.

“…a major breakthrough in green extraction tech, making the traditional process exponentially better.”

—Chris Gallagher, Contributor, USA Today

SCO2

Ingredient Discovery

Ingredients that have been inaccessible or not economically viable are now possible.
What is your goal – health, flavor, texture, color, performance, or all of the above?

Compound Purity

Compound extraction with precision – repeatable, rapid supercritical extraction and fractionation in one-step.

Value Recovery

In a circular economy, every molecule has value. Wasting bio-resources is a missed opportunity to grow your business and keep it sustainable.

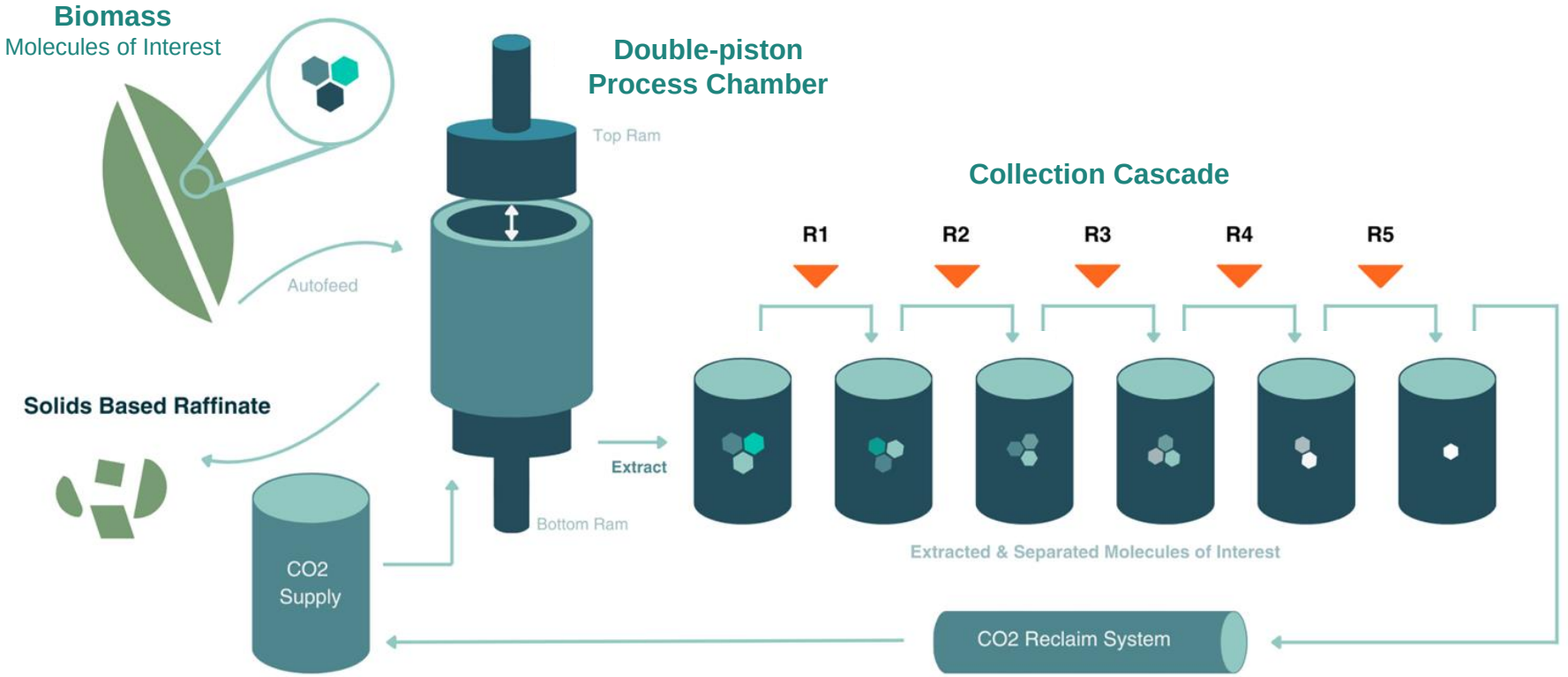
Ingredient Discovery

Compound Purity

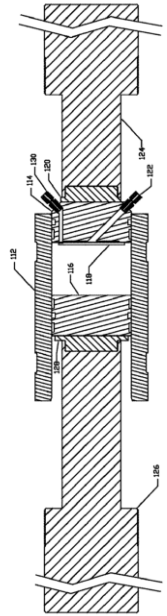
Value Recovery

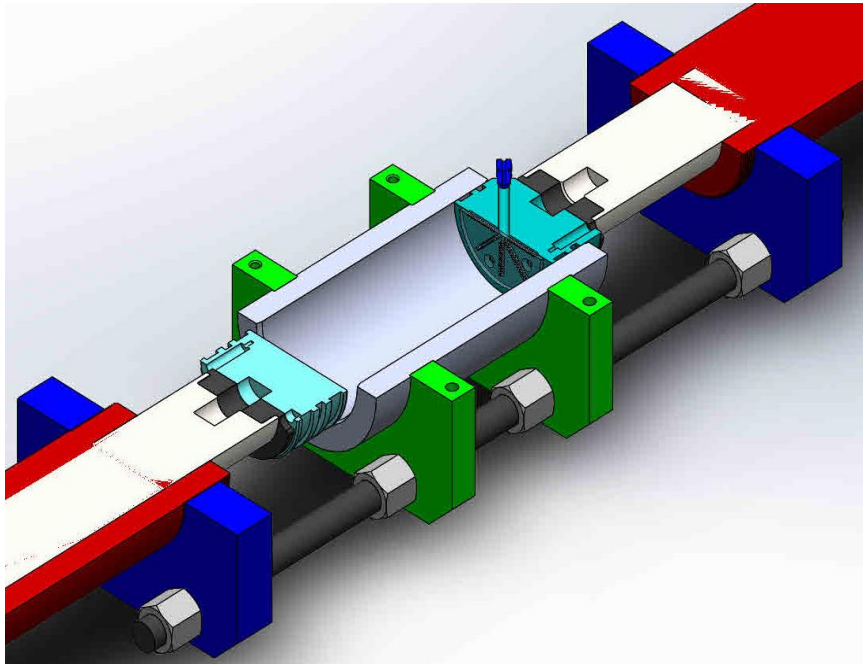
Kawa Project

AUTOMATED EXTRACTION & FRACTIONATION



Supercritical Reinvented





(12) **United States Patent**
Fuchs et al.

(10) **Patent No.: US 11,376,522 B2**
(45) **Date of Patent: Jul. 5, 2022**

Piloting at Scale

SCO2 FACILITY, LITTLE CANADA, MN

Industrial: Cleaner and Smarter

Traditional scCO2 Extraction *No major breakthrough in 50 years*		NEXTRACT™ TECHNOLOGY *Supercritical Extraction Reinvented*
Small/Boutique Applications Size: benchtop up to 2 tons per day	✓	**Industrial Scale** Size: 1-25 tons per hour
Pre-processing required Grinding & bagging	✓	**No pre-processing** Direct feed of biomass
Slow extraction times 40 minutes - 16 hours	✓	**Rapid extraction** Less than 15 minutes
Many downstream steps To achieve target fractions	✓	**No downstream steps required** Fractionate in one step
Manual, multi-step, time-consuming process Does not scale cost-effectively	✓	**Automated end-to-end process** Designed to scale cost-effectively

Platform Model, Rapid ROI

Reduce

80%

Automate

12 : 1

Scale

100x

Let’s Build a Circular Bridge2Food