extractX

MOBILE EXTRACTION SOLUTIONS

Unlocking High Value Natural Molecules with the extractX - Mobile Extraction Labs 2.0

www.extractX.com

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Figure 1 - An extractX mobile extraction lab unit. These self-contained labs are delivered to partner sites and can be operational within weeks, offering Pharma-Grade extraction and distillation on-site.

Introduction

extractX is pioneering a turnkey, data-driven **Extraction-as-a-Service** model for the botanical and pharmaceutical industries. We provide industrial-scale, **Pharma-Grade** mobile extraction labs that can be deployed on-site at a partner's facility with minimal capital expenditure (CAPEX) for the partner[1] [2]. In collaboration with Canurta, a leader in rare polyphenol discovery, extractX is expanding its lab capabilities to capture high-value plant compounds (including unique polyphenols and flavonoids) that have been previously unexplored, allowing for the generation of brand new, diversified revenue streams that materially reduce reliance on the emerging yet inconsistent global cannabinoid market. This white paper outlines extractX's mobile lab solution 2.0, its unique advantages, and the value of the partnership with Canurta for you, the future customer. It also describes the flexible business models for engagement by our global partners who wish to onboard with extractX labs.

extractX Mobile Labs: Pharma-Grade Extraction-as-a-Service

extractX's Solution:

We design, deliver, commission, support with training, our self-contained, **Pharma-Grade** mobile extraction labs that seamlessly integrate into new or existing facilities[3][4] . Each lab is built to **GPP/cGMP/EU GMP standards**, ensuring Pharma-Grade production quality. The labs are delivered **ready-to-run**, drastically reducing time-to-market. extractX has achieved installation in as little as 4 months from contract signings[5]. The model is "Extraction-as-a-Service" where extractX retains ownership of the lab equipment and assists with commissioning of the lab, training and ongoing support to operations, while the partner provides the site and facility, staff and raw material that will be processed for commercial use. This means no lab CAPEX for partners and a rapid scale-up without the typical infrastructure investment [6] [7].

Key Features of extractX Mobile Labs:

Turnkey, On-Site Deployment: The labs are modular units delivered to a partner's location. They come fully equipped for closed loop ethanol-based extraction and 2-stage distillation system, with installation and onboarding by extractX's expert team [8]. A climate-controlled environment and all necessary auxiliary systems (grinding prep area, freezer, utilities) are the partners responsibility.

Pharma-Grade Compliance: Labs are designed to meet GPP/cGMP/EU-GMP standards, enabling partners to produce extracts that can be exported to regulated markets worldwide [4]. The clean-room facilities and standard operating procedures (SOPs) provide help to ensure regulatory compliance and consistent quality.

High Throughput, End-to-End Processing: Each mobile lab can process bulk biomass into finished distillate with a small footprint. For example, extractX offers 4 lab models with capacities from ~25,000 kg up to 250,000 kg of biomass per year [10]. The lab includes extraction, winterization, solvent recovery, and multiple-stage distillation systems, yielding high-purity bulk distillate ready for formulation [12]. This end-to-end capability (from biomass to distilled oil) simplifies partner operations and supply chain.

Figure 2 - The C1D2 extraction clean room

Operational Support & Training: On-site commissioning, training, and ongoing operational support are core parts of extractX's service [13]. We embed a skilled team to get the lab commissioned, operational and train the partner's staff. extractX also takes charge of major maintenance, equipment calibration, and assists with process optimization, allowing partners to focus on upstream (cultivation or sourcing biomass) and downstream (product marketing and sales) activities [14][15]. The partnership is designed for continuous, high-volume processing with extractX assisting in process scale-up and any troubleshooting needed.

Figure 3 – An extractX team member providing training on the extraction HMI screen

Low Partner Overhead: Because extractX handles the lab investment and technical operations, partners avoid heavy capital investment and steep learning curves in extraction tech. No laboratory CAPEX is required from the partner [6] aside from minor facility retrofits (e.g. providing a suitable space, power, ventilation). The typical engagement is a multi-year service contract with throughput commitments, rather than an equipment sale – aligning extractX's success with the partner's processing volume growth.

Fully Automated: Reduces the dependency on highly trained and expensive employees.

Figure 4 – extractX-developed HMI panel used to direct and control the automated extraction process

Summary of extractX Mobile Lab Solutions

EXTRACTX MOBILE LAB MODELS		EML25	EML50	EML100	EML250
Max Volume Capacity (kg) per Year (7- 10% dry biomass)		25,000	50,000	100,000	250,000
Prepayment (required at time of contract)		$160,000	$260,000	$360,000	$750,000
Minimum Volume (Kg) Required	Monthly	1,000	1,304	2,222	3,125
	Yearly	12,000	15,648	26,664	37,500

Biomass Processed (*Cumulative)		Base Processing Fees (*Non-Cumulative)	
lbs.	kg	USD/lbs.	USD/kg
1 - 55,000	1 - 25,000	$11.36	$25.00
55,001 - 110,000	25,001 - 50,000	$9.55	$21.00
110,001 - 220,000	50,001 - 100,000	$8.18	$18.00
220,001 +	100,001 +	$7.27	$16.00

- Additional costs related to shipping, customs, tariffs, taxes and installation.
- Plus, a processing fee in accordance with the following table per pound (lb.) or kilogram (kg) of Biomass processed by extractX's Mobile Lab "Base Processing Fee". Plus, additional Royalty/Licensing Fee for Canurta Products.
- Minimum facility requirements required.
- All rates in USD.
- Rates are subject to change without notice.

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Data-Driven Excellence in Extraction

A distinguishing aspect of extractX's model is our data-driven approach to extraction process management. Each mobile lab is outfitted with advanced sensors and automation systems that log process conditions, composition data, and yields in real time [16]. This continuous data capture is not just for record-keeping – it feeds into a cycle of optimization:

Real-Time Monitoring: Process metrics and key performance indicators (KPIs) such as extraction times, pressure, temperatures, solvent recovery rates, and distillate output are monitored live via a remote dashboard [17]. With this data and combined with testing results, we can create efficiencies and optimize the equipment and processes. Both the partner and extractX's off-site experts can view daily biomass processed and oil produced, ensuring transparency [18].

Machine Learning Optimization: Over time, the system "learns" from the data. Machine learning models are applied to adjust processing parameters for different biomass profiles [19]. Natural plant materials vary (in moisture, potency, etc.), but our AI-enabled capabilities assist in maintaining consistent extract quality and maximizing yields despite potential variations. For example, with the collected data and test results from multiple batches, the system would recommend real-time batch adjustments (e.g. extraction temperature, time) to best suit the biomass input [20].

Quality and Yield Improvement: Data analytics enable extractX to continuously improve extraction and distillate processing quality and throughput. By tracking composition, we can fine-tune steps like winterization or distillation cut points to hit target purity and potency specifications with greater accuracy [21]. This ensures the final product meets changing customer or regulatory specs for pharmaceuticals, nutraceuticals, etc., with minimal batch-to-batch deviation.

Predictive Maintenance: The labs leverage data to move from preventive to predictive maintenance, minimizing downtime [22]. Trends in equipment performance (pressures, motor loads, etc.) are analyzed to predict when service is needed, avoiding unexpected breakdowns. This maximizes uptime for high-volume operations – a critical factor for commercial partners.

Overall, extractX's use of automation and data science leads to unparalleled efficiency and reliability in botanical extraction. For partners, this translates to higher output, consistent product quality, and agility in meeting market demands – all supported by evidence-based process improvements instead of trial-and-error.

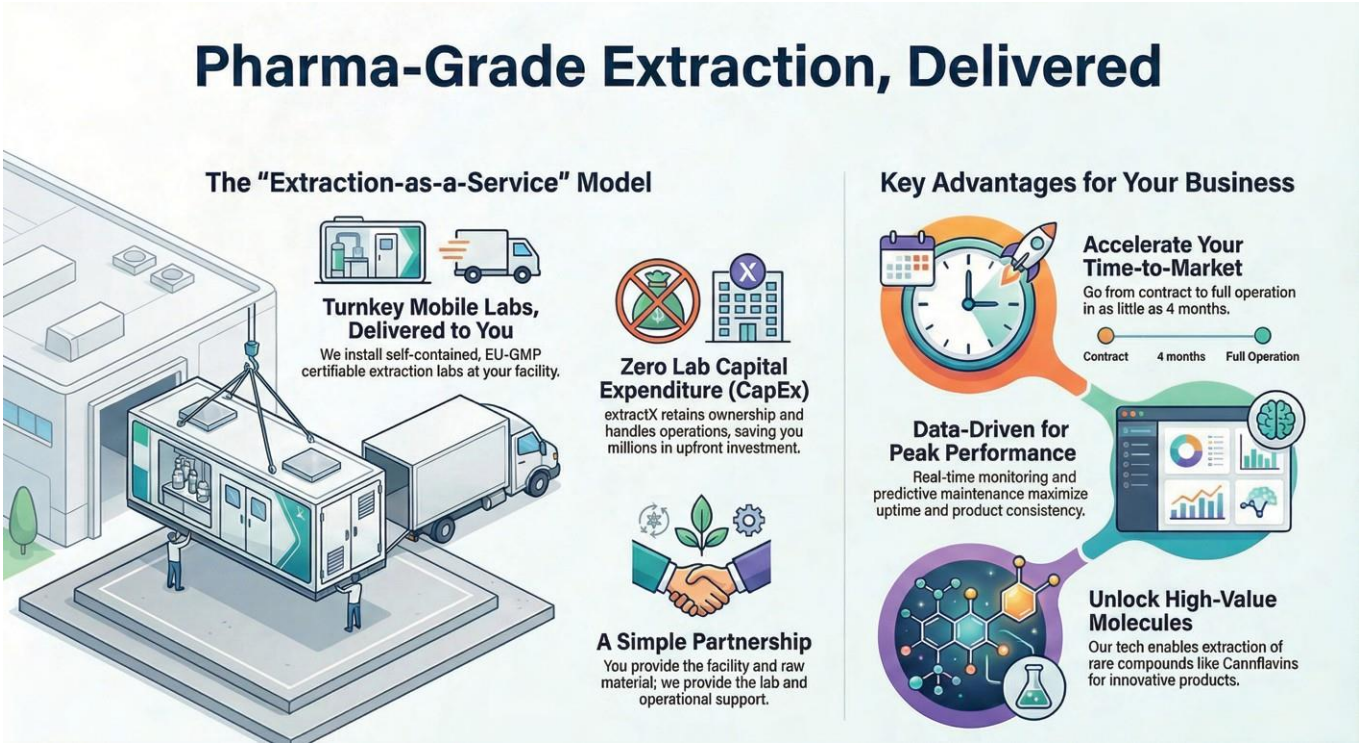

Figure 5 - A turnkey extraction platform designed to accelerate pharmaceutical innovation

Enhancing Lab Capabilities to Capture Rare Polyphenols

While extractX labs are already optimized for the highest quality extraction, an exciting new opportunity has been developed enhancing the lab configuration to capture rare plant polyphenols such as cannflavins. Typically, these valuable compounds are present in trace amounts in various botanical biomasses and in many cases are difficult and costly to extract. By working with Canurta and leveraging their patented extraction processes, and unique know-how, our latest innovation provides the ability to also extract these high-value molecules, creating additional revenue streams for partners, without requiring additional costly processes.

How It Works:

Conventional hemp or botanical extraction processes typically focus on isolating and distilling a main target compound, such as CBD oil. We've gone beyond one target by optimizing these processes and developing proprietary technology to recover additional phytochemicals, including rare flavonoids and other polyphenols. extractX can incorporate additional processing steps and specialized equipment to selectively capture and purify these compounds from the same biomass or co-product streams.

Internal feasibility trials have validated this approach, demonstrating that, in hemp processing, more than 80% of certain target flavonoids present in the biomass can be recovered and concentrated using our methods for instance [23] .
By accessing these streams and applying Canurta's proprietary enrichment technologies, we can isolate significant quantities of bioactive compounds that were previously inaccessible at commercial scale, yielding purified and fully characterized ingredients suitable for formulation.

This capability can guide customers or partners in selecting the most effective extraction and enrichment strategies and allow them to unlock new commercial opportunities by transforming a low-value by-product into novel, high-value ingredients.

Collaboration with Canurta:

extractX has partnered with Canurta, a biotech innovator that has developed novel methods to identify, extract, and enrich rare polyphenolic molecules. Canurta's advanced technologies - including AI-driven drug discovery platform capture polyphenols like cannflavins A & B at commercial scale for the first time [24][25]. By integrating Canurta's intellectual property (e.g. specialized solvents, adsorption media) into extractX's mobile labs 2.0, we unlock an unprecedented capability: on-site production of rare natural molecules that have pharmaceutical-grade potential and documented bioactivity.

This integrated platform will be able to rapidly pivot to capture different target compounds as identified by Canurta's R&D, future-proofing the lab for multiple high-value extractions beyond cannabinoids.

"Polyphenols represent the next major advancement in hemp therapeutics... although discovered decades ago, only now does Canurta have the technology to harness these unique polyphenols effectively."

Dr. Ethan Russo, MD (Canurta Senior Medical Advisor)[26]

By uniting extractX's mobile extraction infrastructure with Canurta's biopharma expertise, our partners can lead the market in discovering and delivering new natural products. This capability is especially compelling for pharmaceutical and nutraceutical companies seeking differentiated, IP-protected ingredients derived from nature.

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New High-Value Molecules: Use Cases & Therapeutic Potential

What kinds of molecules are we talking about, and why are they valuable? Polyphenols, such as flavonoids, are secondary plant metabolites known for a range of bioactive properties. Many are antioxidant and anti-inflammatory agents, but some have very specific modes of action that are of interest to medicine. extractX and Canurta's initial focus is on cannflavin A, but our platform will extend to other rare plant polyphenols from various botanicals. Below is a brief overview of known or emerging use cases for such compounds:

Potent Anti-Inflammatory Effects: Cannflavin A, a flavonoid found only in cannabis, has been shown in preclinical studies to have approximately 30 times the anti-inflammatory potency of Aspirin (acetylsalicylic acid) on a gram-for-gram basis[27]. It achieves this by blocking pro-inflammatory eicosanoids at the source (research suggests cannflavins inhibit multiple inflammation pathways unlike NSAIDs which target only one). For patients, this could mean effective pain and inflammation relief from a natural compound, and without the side effects or addiction risks of opioids and steroids[28] [29]. A product delivering cannflavin-based therapy could address arthritis, muscle soreness, and acute injuries in a novel way.

Dual-Pathway & Multi-Target Action: Molecules like cannflavins can simultaneously modulate more than one biological pathway. For example, a formulation containing cannflavin A and B was shown to block two key inflammatory pathways, while most drugs block only one[30]. This dual-pathway inhibition may translate to broader efficacy in conditions like osteoarthritis, where both COX-2 and LOX pathways contribute to pain. Furthermore, Canurta's discovery platform indicates certain polyphenols have additional targets in neurological or immune pathways[31], opening opportunities in complex diseases such as combining anti-inflammatory and neuroprotective effects for neurodegenerative conditions.

Antioxidant & Cellular Health: Many rare polyphenols are strong antioxidants, meaning they neutralize free radicals and reduce oxidative stress at the cellular level. Oxidative stress is linked to aging, tissue damage, and chronic diseases. A high-polyphenol extract such as Canurta's formulation rich in hemp-derived polyphenols, can protect cells from oxidative damage, decelerating aging and functional decline[32]. This has implications for supplements targeting longevity, skin health, and recovery from environmental stressors.

Enhanced Recovery and Wellness: Botanical polyphenol compounds can support faster recovery from exercise-induced or post-surgical inflammation. Unlike isolated CBD or curcumin, a unique combination of flavonoids (like cannflavin A/B and others) provides a comprehensive, multi-faceted approach to healing. Use cases include dietary supplements to reduce muscle soreness and improve joint function for athletes, wellness formulations to manage everyday aches and improve mobility for the aging population, and adjunct therapies for patients undergoing intensive treatments.

Figure 6 - Botanical Polyphenols supporting recovery and whole-body wellness

For example, Canurta's formulation rich in hemp-derived polyphenols is marketed as a non-intoxicating, plant-based alternative for inflammation relief and recovery, supporting joint health and cellular wellness without the side effects of NSAIDs[33]. This illustrates the kind of product that our partnership can enable at scale.

Pharmaceutical Pipeline Potential: Beyond consumer health supplements, these rare compounds are entering the pharmaceutical R&D pipeline. Canurta's lead drug candidate, CNR-401, is formulated from polyphenols and is being investigated for neuroprotective effects in ALS (Lou Gehrig's disease)[34].

Figure 7 - CNR-401: Advancing polyphenol science into clinical innovation

While such applications are longer-term, a partner who engages in polyphenol extraction now will be well-positioned to supply or co-develop future botanical drugs for inflammatory and neurological diseases.

The upside of discovering a new drug from a natural polyphenol with IP around extraction or formulation is enormous – akin to the development of aspirin from willow bark or paclitaxel from yew trees but accelerated by modern bioinformatics and extraction technology. These are well known molecules that are commercialized at large scale as NHP and dietary ingredients for their antioxidant activities. The extractX extraction platform combined with Canurta's target-driven enrichment technologies, will enable the introduction of rare (and novel) polyphenol to the market with new bioactivities properties.

In summary, the ability to capture rare polyphenols unlocks a pipeline of high-value ingredients and products, from enhanced nutraceuticals for inflammation, recovery, healthy aging to potential botanical drugs addressing unmet medical needs. Cannflavin A is just the beginning, a proof-of-concept of what our combined technology can achieve. As scientific interest in multi-target natural compounds grows, partners in this venture will be at the forefront of a new category of therapeutic innovation.

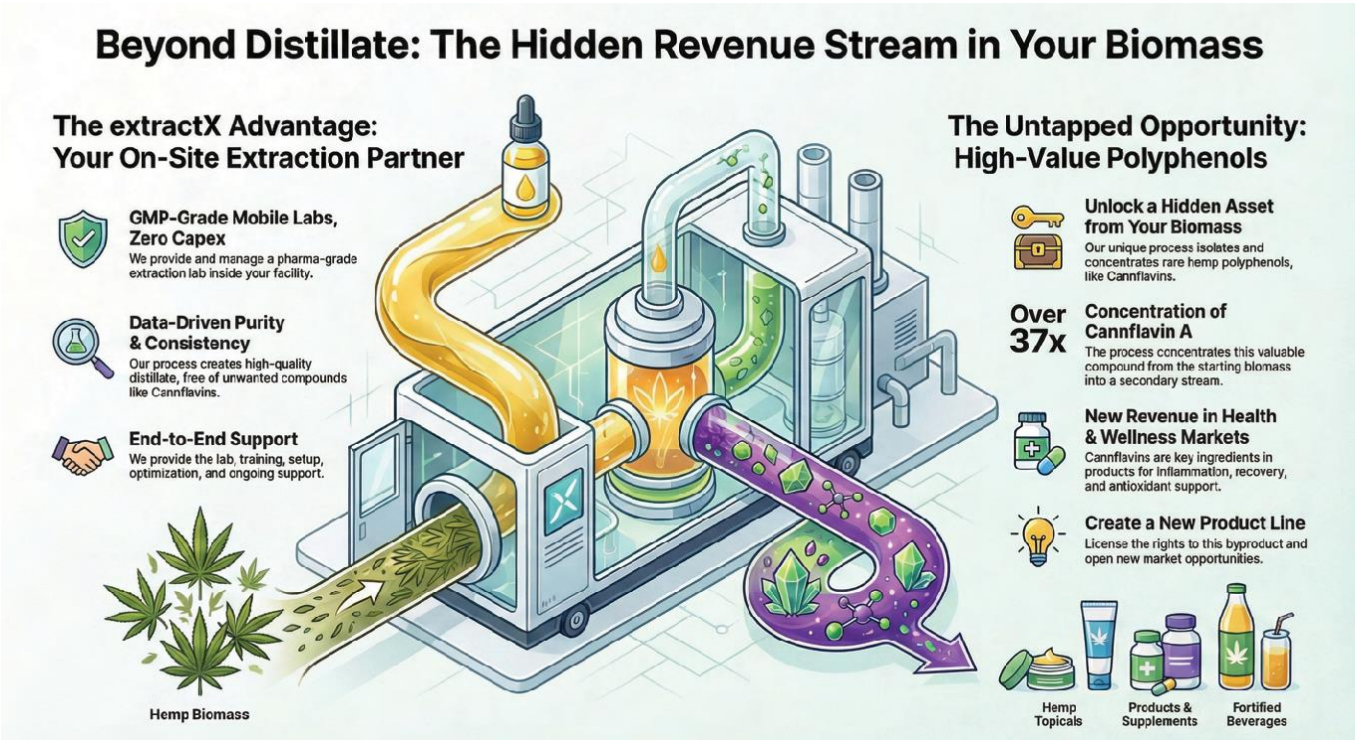

Figure 8 - Unlocking hidden revenue streams through advanced polyphenol extraction

More information can be found at www.canurta.com/blog

Flexible Partnership Models

extractX is offering this capability to select international partners through a flexible partnership framework. Our goal is to tailor collaborations that play to each partner's strengths and market focus. We understand that a "one-size-fits-all" approach won't suit all potential collaborators, so we are open to various business arrangements, including:

Technology Licensing with our Typical Lab Lease: For partners who have regional market access and raw material supply but lack extraction infrastructure, we can license the mobile lab technology or provide it as a long-term lease. This gives the partner a ready-made GPP/cGMP/EU GMP certifiable extraction facility without having to develop one from scratch. Licensing deals can include knowledge transfer and certification support, ensuring the partner can meet pharma-grade standards.

Revenue Sharing & Royalty Models: In cases where a partner co-develops a new product (e.g. a polyphenol-rich extract or a formulated therapeutic), extractX and Canurta can agree on royalty streams or profit-sharing. For example, if a partner uses cannflavin (or other polyphenol) extracts from our process in a drug or supplement, a royalty on sales could compensate the extraction technology contribution. This aligns incentives on both sides to create a successful commercial product.

Co-Development Joint Ventures: For deeper collaborations, we can form joint ventures or co-development agreements. A partner with strong R&D (e.g. a pharma company or research institute) might work with Canurta's scientists to identify target compounds, while extractX provides the extraction platform to produce those compounds at scale. The parties would jointly own or share IP and commercialization rights. This model is ideal for tackling new indications or conducting clinical trials on the extracts, sharing risk and reward.

Regional Distribution or White-Label Partnerships: Given extractX's global deployment capability, we can forge region-specific deals. A partner in Europe or Asia, for instance, could host a mobile lab and act as the regional hub for production of polyphenol ingredients or finished products. This could be structured with exclusive territory rights where the partner takes on marketing and distribution in that region, while extractX/Canurta supports the supply and innovation. Conversely, in markets where extractX already has a presence, we can integrate a partner's product line (e.g. a patented formulation) into our production and share in the growth.

All these models are underpinned by extractX's commitment to long-term partnership. Typically, our mobile labs contracts run 3+ years [35], ensuring stability and continuous collaboration. We provide transparency in operations (dashboard access, regular reports) and work closely with partners on demand planning (so that lab capacity and outputs match the partner's market needs). Our success is mutual – extractX's revenue comes from the processing throughput and royalty/licensing fees, so we are highly motivated to help partners scale up product volumes and enter new markets.

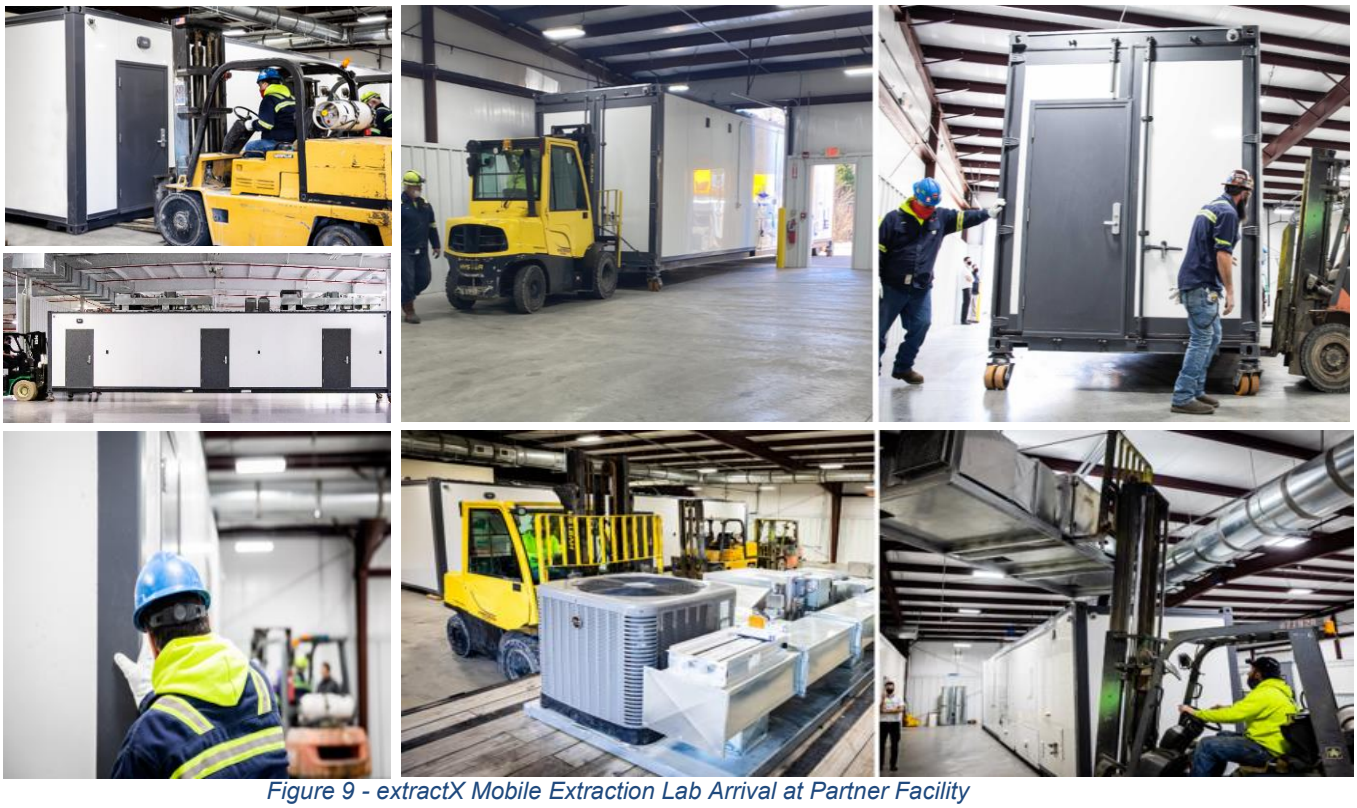

Figure 9 - extractX Mobile Extraction Lab Arrival at Partner Facility

Global Opportunity and Next Steps

The vision for this initiative is inherently global. Health and wellness markets around the world are trending toward natural and plant-based solutions, and regulatory shifts such as cannabis rescheduling in the US[25], are opening new avenues for polyphenol-rich extracts in medicine. extractX's mobile labs are designed to meet international standards, enabling partners to manufacture in one country and export to multiple regions without regulatory hurdles[36].

This is a crucial advantage for any partner aiming to be a first mover in their region with a novel ingredient or therapy. We intentionally keep the initial white-label offering general (e.g. "rare polyphenol blend") so that it can be localized into region-specific products later, whether it becomes a joint health supplement in Asia or a prescription botanical drug in Europe, the core extraction capability remains the same.

Sub-Segment	Market Size	Year
Therapeutics		
ALS	$969M	2031
Inflammatory Disease	$272B	2033
Neurological Disease	$103B	2033
Infrastructure		
Extraction & Processing	$15.5B	2030
Wellness		
Functional Nutrition	$586B	2030
Pain & Inflammation	$190B	2031
Cognitive Health	$26B	2030
Digital Health & AI	$25B	2031
Vision 2035		
Adaptive Medicine	$470B	2034

extractX together with Canurta is presenting a strategic partnership opportunity to unlock a new class of natural products. By leveraging our mobile, Pharma-Grade extraction labs and Canurta's polyphenol enrichment technology, partners can rapidly enter the market for rare bioactive molecules with minimal risk and upfront cost. The endeavor promises not only strong commercial returns (high-margin ingredients, licensing revenues) but also positions our partners as innovators in the burgeoning field of multi-target therapeutics.

We invite interested parties – whether you are a large nutraceutical firm, a pharmaceutical developer, or an integrated cannabis operator – to discuss how this model can be tailored to your needs. Together, we can harness nature's rarest molecules and deliver next-generation health solutions worldwide.

Contact extractX now to explore unlocking high value natural molecules with our extractX Mobile Extraction Lab 2.0 and be part of the future of extraction and natural drug discovery.

Albert Iannantuono
CEO
alberti@extractx.com
1-905-327-5313

Sources and References

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