CONTRACT PHARMA

Botanical Solution's Gaston Salinas on Expanding Access to QS-21

Due to various challenges, 'gold-standard' adjuvant QS-21's supply has remained limited, and its application has been restricted to blockbuster vaccines—BSI is trying to change that.

March 27, 2025

By: **Charles Sternberg**

QS-21 is the "gold standard" vaccine adjuvant. It's currently used in RSV, shingles, malaria and COVID-19 vaccines—and it's being studied among other vaccine candidates with broader target diseases in different stages of development. But QS-21 wasn't just discovered overnight. The compound has been in the literature for approximately thirty years, yet it wasn't made into a commercial pharma product until 2017. The reason for this slow adoption? QS-21 is extremely expensive—about $400,000 per gram—and is traditionally harvested from *Quillaja saponaria*, also known as the soapbark, which is an exotic and protected tree native to Chile.

As a result of these challenges, QS-21's supply has remained limited and its application has been restricted to blockbuster vaccines by giant pharmaceutical companies such as GSK, excluding its benefits for poorer populations and other vaccines.

Quillaja saponaria.

This is where Botanical Solution Inc. (BSI) steps in. BSI has developed a proprietary method of producing advanced botanical materials (ABM) from *Quillaja saponaria* without cutting down trees. BSI's novel platform can produce *Quillaja saponaria* in vitro using scalable tissue culture techniques that create ingredients at high purity and consistency at a low cost. BSI's goal is to make QS-21 accessible to a wider range of vaccines and populations, particularly in low-income countries.

"Our core mission is to ensure QS-21 is available not only for large pharmaceutical companies but also for those developing vaccines for less privileged regions globally," says Gaston Salinas, CEO of BSI.

To accomplish this lofty mission, the company has been actively raising funds, expanding operations, and forging partnerships.

“These are really exciting times for the company, but also for vaccine development.”

–Gaston Salinas, Co-Founder and CEO, BSI.

Recent Series A

In August 2024, BSI closed another $7.6 million financing, as part of Series A, that will fund the commencement of in-house production of QS-21. The total Series A funding now stands at $23.3 million and will allow BSI to complete several transformative milestones, including the acceleration of GMP production of QS-21 for human vaccines. The funds also enhance BSI’s R&D capabilities, including expanding labs in Davis, California, supporting long-term quality and supply of QS-21.

Salinas called the financing round “a pivotal step” in advancing BSI’s mission to deliver sustainable, high-quality botanical products.

Expanded Partnership with Croda

Also last year, BSI extended its strategic collaboration with Croda Pharma to support the sustainable sourcing of QS-21. The partnership sees the two organizations share expertise to bring to market QS-21 from *Quillaja saponaria* plant tissue culture, delivering the most sustainable source of the adjuvant from plantlets in contrast with conventional methods that harvest mature trees to extract material from the bark. Furthermore, the partnership allows Croda to further tackle the industry challenge of limited supply sources for this critical component.

Salinas believes that Croda's expertise in adjuvant and delivery systems with help smaller biopharma companies utilize QS-21.

According to Salinas, "BSI and Croda Pharma are natural partners with a shared vision on removing the barriers that have prevented mass adoption of QS-21 for developing highly efficacious modern vaccines. Through this very exciting partnership we aim to supply kilogram-quantities of sustainable GMP QS-21."

Expansion

To achieve its goals, BSI is also expanding its research and production capabilities. Recently, the company established two new R&D labs in California: one in Davis and another in Woodland. The primary purpose of these labs is to develop the next generation of raw materials that will enhance BSI's production system, specifically focusing on raw materials that naturally produce higher yields of QS-21.

The strategic location of these labs was chosen due to their proximity to the University of California, Davis, a significant source of talent in the life sciences, and to the Bay Area's BioTech industry.

"Our labs in Northern California, particularly near UC Davis, are strategically located to attract top talent in the life sciences," Salinas explains.

In tandem with this expansion, BSI has significantly advanced its production capabilities, moving from solely extracting raw botanical material to producing the actual QS-21 adjuvant. The company is also developing a novel purification system that eliminates the use of toxic organic solvents like acetonitrile. BSI plans to roll out QS-21 under GMP standards within the year.

Salinas says, “We’ve advanced from producing the botanical extract to manufacturing the actual QS-21 compound.”

Looking forward, BSI has no plans to slow down. It’s on the path to becoming a pharmaceutical company and is preparing to launch a Series B—all aimed at making the vital vaccine adjuvant QS-21 more accessible and sustainable.

“These are really exciting times for the company, but also for vaccine development,” Salinas remarks.

If you’re interested in learning more about BSI and its mission, Gaston Salinas will be a featured speaker at CPHI Americas in Philadelphia on Tuesday, May 20th.