

# Most Innovative Vaccine Efficiency Enterprise 2024 – Americas

**Botanical Solution Inc. (BSI) is a leading Advanced Botanical Materials (ABM) provider on a mission to supply world demand for the greater use of QS-21 vaccine adjuvant for activating the human immune system. Here we take a closer look as the enterprise wins its esteemed title in our Healthcare and Pharmaceutical Awards 2024.**

The Quillaja saponaria Mol. (soapbark tree) is an endemic evergreen tree native to Chile, containing an extract that is used to create both the potent bio fungicide Quillibrium® and the gold standard vaccine adjuvant QS-21.

QS-21 is a key component of human vaccines for RSV, shingles, coronavirus, and malaria, serving to activate the human immune system. This purified plant extract consists of a glycosylated triterpene that cannot be chemically synthesized, thereby creating supply chain difficulties. As the component is derived from the bark of a protected species, Chilean and other national applicable laws have restricted the deforestation of the Quillaja saponaria while the demand remains on the rise, leading to a cost that ranges from \$400,000 to \$500,000 per gram. This cost has restricted the use of QS-21 mainly to blockbuster vaccines and first world countries.

What BSI discovered is an innovative and proprietary method of growing Quillaja saponaria trees right in their own labs and extracting the QS-21 while the trees are in vitro. This approach completely avoids the cutting down of any Quillaja saponaria trees and allows BSI to cultivate and produce a virtually unlimited supply of QS-21 to serve global vaccine market demand, helping to make this active ingredient more available and affordable for use in more vaccines and in more countries worldwide.

With its headquarters in Davis, California, and dedicated labs in Davis and Santiago, Chile, BSI has a global reach. The combined forces of BSI's Co-Founders, Gastón Salinas, CEO, and Gustavo Zúñiga, former CSO, have given BSI the best start it could have imagined. Uniting Gastón's expertise as an industrial engineer, with a dedication to science-based ventures and corporate innovation, with Gustavo's experience as a biologist and former Dean and Associated Researcher at the Universidad de Santiago de Chile, BSI was created on a sturdy foundation of a commitment to excellence in scientific research and biotechnology.

Botanical Solution began in 2013 with the development of a botanical-based bio fungicide for crop protection based on the soapbark tree tissue grown in its lab. In 2016, the company created its first product, BotriStop®, to protect fruits and vegetables from the pathogen Botrytis cinerea. By 2018, Syngenta began exclusively distributing BSI's BotriStop® across Chile. Duly incorporated in Delaware in 2019, BSI set off on its journey to becoming a global player in the world of biocontrol. Its efforts resulted in gaining a presence in California and gaining sponsorship from UC Davis Venture Catalyst to share its groundbreaking work with Northern California's innovation and venture capital ecosystem.

In 2021, BotriStop® was renamed to Quillibrium®, as this powerful biofungicide was protecting crops from several different pathogens in addition to Botrytis. Quillibrium's use by growers was



expanded into Peru and Mexico, with US EPA and EU registrations now pending.

In 2022, after a thorough research process conducted by the BSI's R&D Pharma Team, led by Jennifer Alfaro, PhD in Cellular and Molecular Biology and Neuroscience from Universidad de Chile, BSI found that its in-lab process of growing Quillaja saponaria trees and extracting the active ingredients could also apply to the production of QS-21 adjuvant for the activation of the human immune system in vaccines.

2023 saw BSI form an agreement with Croda Pharma, a division of UK-based Croda International, which has fuelled the production of the gold standard QS-21 vaccine adjuvant at a kilogram scale – also under GMP standards. In the past 12 months, leading us up to this very moment, BSI has worked tirelessly on its existing network and partnerships to bring its trailblazing solution to the global market.

Here at Global Health and Pharma, we are delighted to have the opportunity to present BSI's devoted work to our readers, and we're sure that BSI will continue to innovate the sphere of human health sustainably and effectively in the years to come.

Contact: [info@botanicalsolutions.cl](mailto:info@botanicalsolutions.cl)  
Company: Botanical Solution Inc.  
Web Address: <https://botanical-solution.com/>