

CAS CUSTOM SERVICESSM

PRESERVING BRAZIL'S BIODIVERSITY WITH DATA INNOVATION

Solution success story



The Challenge: A chaotic landscape of scientific information

Home to approximately 20% of all species on the planet, Brazil offers enormous potential in the search for bioactive compounds used in drug discovery, cosmetics, and nutrition among other industries. Yet, the rich biodiversity in Brazil remains underexplored partly due to the lack of organized information on natural compounds. In addition, the volume and complexity of scientific publications have exploded in the last few decades, creating a chaotic landscape of scientific information and posing a critical challenge to researchers worldwide.

Increased urbanization is endangering rare species in Brazil, creating a pressing need for systematic curation of data. The existing NuBBE Database (Nucleus for Bioassays, Biosynthesis, and Ecophysiology of Natural Products Database) contained limited scientific information on about 2,000 compounds. When a fire consumed the National Museum of Rio de Janeiro in 2018, research was further impeded by the permanent loss of rare samples. Researchers at the State University of São Paulo needed a better way to access relevant information on the unique Brazilian biodiversity.

The Solution: Empowered research drives innovation

A collaboration between natural product researchers in Brazil and scientific information specialists at CAS, a division of the American Chemical Society, resulted in a comprehensive data collection representing over 54,000 substances from Brazil's rich biodiversity. CAS scientists extracted information on a total of 51,973 chemical substances, including structures, names, and synonyms sourced from over 30,000 published journal articles compiled by the Brazilian funding agency CNPq. With specialized knowledge in managing information, the team at CAS brings technical expertise in curating chemical information, verifying data, and extracting insights from thousands of publications.

The curated, well-structured database enables scientists across industries to search for, screen, and compare the chemistry of natural, bioactive compounds. Easy access to this information empowers researchers to efficiently identify potential targets, avoid duplication of previous efforts, and build on prior discoveries.

Through the combination of expert human analysis by CAS scientists and advanced data-processing technology, it's possible to efficiently make connections and uncover trends in data that may otherwise go unnoticed. Researchers can also build new hypotheses based on existing findings or identify targets underrepresented in the field.

"Collaborating with CAS had a huge impact on the project. During my visit at CAS, they showed me how they curate the data. There are hundreds of scientists working to mine the literature. The quality is impressive. We completely trust the data sent by CAS."

Dr. Marilia Valli
Postdoctoral Researcher, IFSC-USP

Find out how CAS Custom Services can help you transform scientific data into actionable, evidence-based insights that maximize investment and fuel success.

Learn more at cas.org

CAS

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American Chemical Society

