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# Amazonian bioprospection and biotechnology: Phytochemistry-plant cell culture-endophytic fungus, all together to achieve active substances

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## Abstract

In the present work I will show the main results obtained by my research group trying to find out active molecules from the Amazonian region. From our bioprospection program, we choose several plants which were fractionated and the active substances were isolated. Then our research moves on to try to produce them in higher amount by in vitro plant cell cultures and also by endophytic fungus production. But for our surprise, they produce other substances, and two of them with a pharmaceutical use. One specific plant species was phytochemically studied, when we isolate several indole alkaloids and triterpenes actives. Then the plant was established in vitro, where callus was produced and we performed several assays with elicitors to induce secondary metabolites production. Also, one endophytic fungus obtained from this plant was cultivated and another active alkaloid was isolated. And we studied the proteomic expression of leaves, stems and callus, compare them and we found out they were able to produce the alkaloid enzymes. In this lecture I will discuss all these results.

## Biography

Cecilia Veronica Nunez has completed her PhD in Organic Chemistry, in 2000, at the age of 28 years from University of São Paulo, Brazil. She is researcher of National Institute of Amazonian Research, Brazil, where the main research lines are: Phytochemistry, Plant Biotechnology and Endophytic fungus. She has over 70 publications that have been cited over 300 times, and her publication H-index is 10 and has been serving as an editorial board member of reputed Journals.

## Publications

1. Tuning the Nature of N-Based Groups From N-Containing Reduced Graphene Oxide: Enhanced Thermal Stability Using Post-Synthesis Treatments.
2. Chemical and biological evaluation of Graphium jumulu, endophytic fungus of Duroia macrophylla Huber (Rubiaceae) Avaliação química e biológica de Graphium jumulu, fungo endofítico de Duroia macrophylla Huber (Rubiaceae)
3. Neutralization of the edema-forming and myotoxic activities of the venom of Potamotrygon motoro Müller and Henle, 1841 (Chondrichthyes – Potamotrygoninae) by antivenoms and circulating immunoglobulins
4. Identification of P-type ATPases on Salmonella enteritidis spherosplast
5. 2020-capitulo-livro-Micologia-Fungos e-ou metabólitos - Juliana Gomes
6. ATIVIDADES BIOLÓGICAS E PROSPECÇÃO QUÍMICA DE EXTRATOS DE FUNGOS ENDOFÍTICOS DE Duroia macrophylla HUBER (RUBIACEAE)
7. Evaluation of the anti-snakebite, antimicrobial and antioxidant potential of Philodendron megalophyllum Schott (Araceae), traditionally used in accidents caused by snakes in the western region of Pará, Brazil
8. Duroia saccifera: in vitro germination, friable calli and identification of β-sitosterol and stigmasterol from the active extract against Mycobacterium tuberculosis
9. Elemental Concentration and Sulfur Chemical Speciation in the Amazonian Plant Andira surinamensis Using Synchrotron Radiation Techniques (SR-XRF, XANES), RBS and WD-XRF
10. Avaliação do potencial antimicrobiano e antiofídico de Casearia javitensis (Salicaceae)
11. Evaluation of antiparasitary, cytotoxic and antioxidant activity and chemical analysis of Tarenaya spinosa (Jacq.) Raf. (Cleomaceae)
12. 2019-JBCS-supplem-Gerson-Joselaine-Andira surinamensis.pdf
13. A Procedure for Assessment of the Reducing Capacity of Plants-Derived Beverages Based on the Formation of the FeII/2,2'-Bipyridine Complex

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