Brazil nuts are subject to infection with B and G aflatoxin-producing fungus, Aspergillus pseudonomius - DTU Orbit (16/12/2018)

The exploitation of the Brazil nut is one of the most important activities of the extractive communities of the Amazon rainforest. However, its commercialization can be affected by the presence of aflatoxins produced by fungi, namely Aspergillus section Flavi. In the present study, we investigated a collection of Aspergillus nomius strains isolated from Brazil nuts using different approaches, including morphological characters, RAPD and AFLP profiles, partial beta-tubulin and calmodulin nucleotide sequences, aflatoxin patterns, as well as tolerance to low water activity in cultured media. Results showed that most of the isolates do belong to A. nomius species, but a few were re-identified as Aspergillus pseudonomius, a very recently described species. The results of the analyses of molecular variance, as well as the high pairwise F-ST values between A. nomius and A. pseudonomius suggested the isolation between these two species and the inexistence of gene flow. Fixed interspecific nucleotide polymorphisms at beta-tubulin and calmodulin loci are presented. All A. pseudonomius strains analyzed produced aflatoxins AFB1, AFB2, AFG1 and AFG2. This study contains the first-ever report on the occurrence in Brazil nuts of A. pseudonomius. The G-type aflatoxins and the mycotoxin tenuazonic acid are reported here for the first time in A. pseudonomius.

General information
State: Published
Organisations: Department of Systems Biology, Natural Product Chemistry, Universidade Estadual de Londrina, Universidade de Sao Paulo, Instituto de Tecnologia de Alimentos
Number of pages: 8
Pages: 14-21
Publication date: 2014
Peer-reviewed: Yes

Publication information
Journal: INTERNATIONAL JOURNAL OF FOOD MICROBIOLOGY
Volume: 186
ISSN (Print): 0168-1605
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.76 SJR 1.366 SNIP 1.436
Web of Science (2017): Impact factor 3.451
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.97 SJR 1.481 SNIP 1.553
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 4.02 SJR 1.614 SNIP 1.683
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 3.62 SJR 1.493 SNIP 1.695
Web of Science (2014): Impact factor 3.082
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3.8 SJR 1.612 SNIP 1.841
Web of Science (2013): Impact factor 3.155
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.7 SJR 1.603 SNIP 1.705
Web of Science (2012): Impact factor 3.425
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.63 SJR 1.607 SNIP 1.713
Web of Science (2011): Impact factor 3.327
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.61 SNIP 1.666
Web of Science (2010): Impact factor 3.143
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.475 SNIP 1.539
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.442 SNIP 1.509
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.349 SNIP 1.692
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.541 SNIP 1.788
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.511 SNIP 1.834
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.502 SNIP 1.638
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.233 SNIP 1.612
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.226 SNIP 1.289
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 1.031 SNIP 1.506
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 1.043 SNIP 1.306
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 1.071 SNIP 1.2

Original language: English

Keywords: Amazon Rain Forest South America Neotropical region, Dicotyledones Angiospermae Spermatophyta Plantae (Angiosperms, Dicots, Plants, Spermatophytes, Vascular Plants) - Lecythidaceae [26250] Bertholletia excelsa species Brazil nut common host, Fungi Plantae (Fungi, Microorganisms, Nonvascular Plants, Plants) - Fungi Imperfecti or Deuteromycetes [15500] Aspergillus nomius species pathogen Aspergillus pseudomonius species pathogen, Aspergillus pseudomonius benA gene [Fungi Imperfecti or Deuteromycetes] polymorphism, Aspergillus pseudomonius cmd gene [Fungi Imperfecti or Deuteromycetes] polymorphism, aflatoxin B-1 1162-65-8 synthesis, aflatoxin B2 7220-81-7, aflatoxin G-1 1165-39-5, aflatoxin G2 7241-98-7, beta-tubulin, calmodulin, tenuazonic acid 75652-74-3 toxin, mycotoxin, 03502, Genetics - General, 03504, Genetics - Plant, 10060, Biochemistry studies - General, 10062, Biochemistry studies - Nucleic acids, purines and pyrimidines, 10064, Biochemistry studies - Proteins, peptides and amino acids, 13502, Food technology - General and methods, 13504, Food technology - Fruits, nuts and vegetables, 22501, Toxicology - General and methods, 22502, Toxicology - Foods, food residues, additives and preservatives, 36001, Medical and clinical microbiology - General and methods, Foods, Infection, Molecular Genetics, Toxicology, Brazil nut, infection Infection (MeSH) infectious disease etiology, Biochemistry and Molecular Biophysics

DOIs: 10.1016/j.ijfoodmicro.2014.06.006
Source: FindIt
Source-ID: 268331807
Research output: Research - peer-review › Journal article – Annual report year: 2014