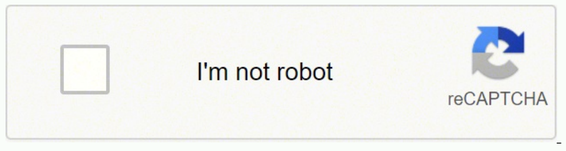

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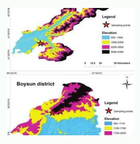

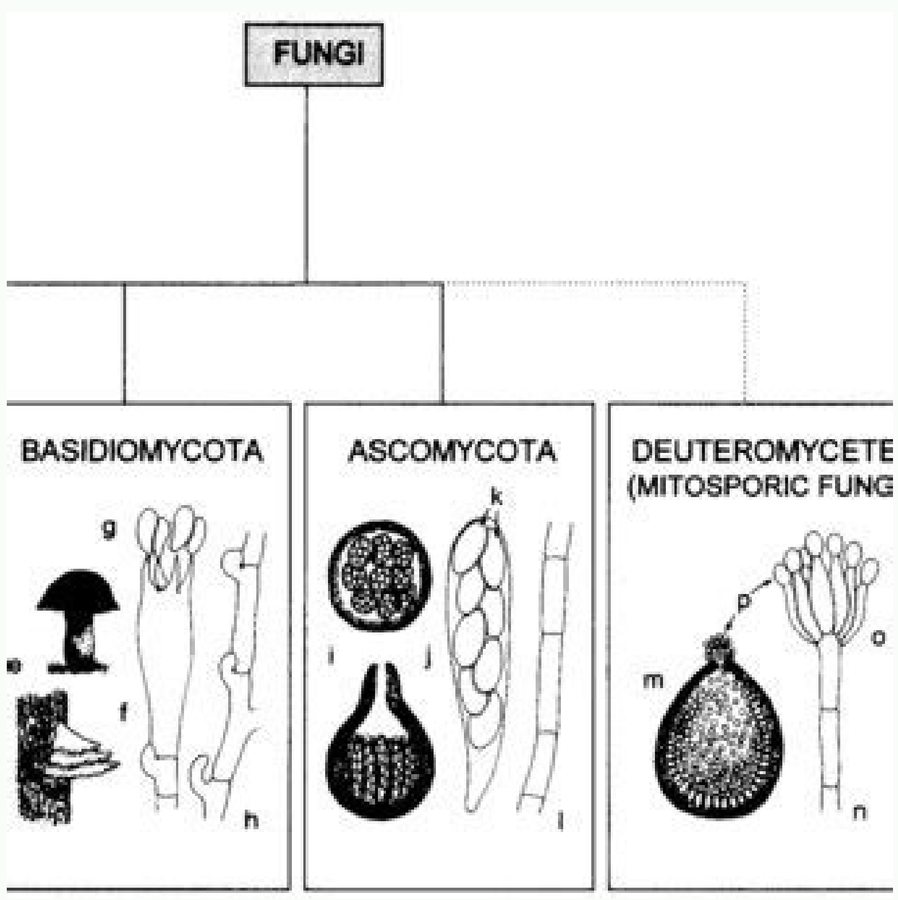

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Identification of *Candida dubliniensis* in a Prospective Study of Patients in the United States

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Although *Candida albicans* remains the fungal species most frequently isolated as an opportunistic oral pathogen, other yeast species are often identified in human immunodeficiency virus (HIV)-seropositive patients. *Candida dubliniensis* phenotypically resembles *C. albicans* in many respects, yet it can be identified and differentiated as a unique *Candida* species by its phenotypic and genetic profiles. The purpose of the present study was to prospectively test for the presence of *C. dubliniensis* among clinical isolates and to determine the clinical and demographic characteristics of patients harboring *C. dubliniensis*. Over a 90-day period, isolates from 724 patients that were presumptively identified as *C. albicans* were screened for *C. dubliniensis* by use of tests for germ tube and chlamydospore production, by detection of an inability to grow at 45°C, by colony color on CHROMagar Candida medium, and by the results of a sugar assimilation test with the API 20C AUX yeast identification system. Among 699 isolates retrieved from those specimens evaluated, 5 from 25 HIV-seropositive patients and 1 isolate from a patient whose HIV status was unknown were shown to be consistent by phenotyping and by electrophoretic karyotyping with the European reference strain of *C. dubliniensis*. One of the *C. dubliniensis* isolates had dose-dependent susceptibility to fluconazole (MIC, 16 μg/ml). These results confirm the presence of this interesting species in the United States and support the need for further investigations into the prevalence and pathogenesis of *C. dubliniensis*.

Among the many opportunistic infections observed in human immunodeficiency virus (HIV)-infected patients, oral candidiasis ranks high in terms of incidence. The yeast *Candida albicans* has long been considered the predominant etiologic agent of candidiasis. Over the last decade, however, there has been an increase in the incidence in immunocompromised individuals of candidiasis caused by other *Candida* species, such as *C. tropicalis*, *C. krusei*, *C. glabrata*, and *C. lusitaniae* (10, 24, 26, 27).

In 1995, a new species of *Candida* which had phenotypic characteristics similar to those of *C. albicans* was characterized and was named *C. dubliniensis* (19, 20). The clinical significance of any new species, including *C. dubliniensis*, is primarily based on the ability to determine if the pathogenesis or management of the infection is different from that of an infection caused by other members of the genus, especially *C. albicans*. For *C. dubliniensis*, the clinical significance seems to be its association with HIV-seropositive individuals (1, 2, 8, 11, 20–23). Furthermore, within the HIV-seropositive population, intravenous drug abuse has been reported as a risk factor in those patients found to be harboring *C. dubliniensis* (1, 21). To date, virulence factors exclusive to *C. dubliniensis* have not been elucidated but are under investigation (8).

Standard clinical laboratory procedure designates yeast cultures that form germ tubes and chlamydospores as members of the species *C. albicans* (12). Since *C. dubliniensis* strains share these characteristics, it is likely that some *C. dubliniensis* strains have been and will continue to be identified in the clinical laboratory as *C. albicans*.

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Currently, methods for rapid identification and determination of the specific species of *Candida*, including *C. dubliniensis* and atypical *Candida* species that cause infections, are under study in various laboratories (3, 22). Numerous researchers are attempting to develop molecular probes (3) and to identify more detailed protein patterns for *C. dubliniensis* in order to further delineate the epidemiology and pathogenesis of this organism in HIV-infected patients. Although the extent of its contribution to the opportunistic infection of the oropharyngeal complex is not yet known, concerns over the occurrence of fluconazole resistance in clinical isolates have been raised. The observation of readily inducible stable fluconazole resistance in vitro has been made (11). If, indeed, *C. dubliniensis* represents a species that can rapidly develop resistance to antifungal therapy, then patients who have received multiple treatments for fungal infections throughout the course of their AIDS disease may be at increased risk for harboring *C. dubliniensis* as the predominant species in their oral cavities.

The following are the results of a prospective study designed to recover and identify *C. dubliniensis* and presumptive clinical *C. albicans* isolates from the oral cavities of HIV-seropositive individuals.

MATERIALS AND METHODS

Presumptive *C. albicans* isolates. Isolates ($n = 699$) collected between January and March 1998 were identified, by using standard criteria (25), as *C. albicans* by the clinical laboratories at the University of Maryland and The Johns Hopkins Medical Institutions. They were reevaluated by differential growth on Sabouraud dextrose agar (SDA; Difco Laboratories, Detroit, Mich.) at 45°C as the first step in identifying any isolate that may have been *C. dubliniensis*.

Isolates from HIV-seropositive patients. Twenty-five additional isolates recovered from HIV-seropositive individuals managed at the University of Maryland Dental School were also included for a final sample population of 724. Of those HIV-infected patients sampled, 26% were females and 74% were males, with an age range of 28 to 46 years. Oral samples were obtained from the midddorsum of the tongue with a sterile swab, which was immediately used to inoculate and

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RESEARCH ARTICLE

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Diversity of *Akanthomyces* on moths (Lepidoptera) in Thailand

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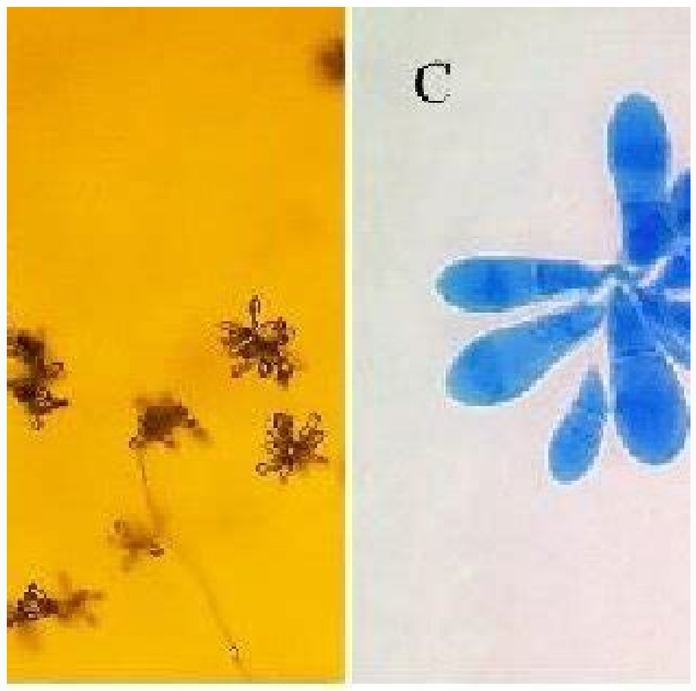
Abstract

Akanthomyces is a genus of invertebrate-pathogenic fungi from the family Cordycipitaceae (Ascomycota, Hypocreales). Its species occurs on two different types of hosts, spiders and insects, and in the latter case specifically Lepidoptera adults. Three new species of *Akanthomyces*, *A. noctuidarum*, *A. pyralidarum*, and *A. tortricidarum* occurring on adult moths from Thailand are proposed based on the differences of their morphological characteristics and molecular data. Phylogenetic analyses using a combined dataset, including the internal transcribed spacer regions, the large subunit of the ribosomal DNA, translation elongation factor 1-α, the largest subunit of RNA polymerase II, and the second largest subunit of RNA polymerase II, support the delimitation of these new species in *Akanthomyces*.

Keywords

Akanthomyces, entomopathogenic fungi, fungal taxonomy, multilocus phylogeny



Ascomycota characteristics pdf. Phylum ascomycota characteristics. Ascomycota characteristics biology discussion. Ascomycota characteristics ppt. Ascomycota characteristics quizlet. Select the characteristics of members of the ascomycota phylum. Which of the following are characteristics of ascomycota. Division ascomycota characteristics.

Genus of Fungi Neurospora Neurospora Crassa Scientific Classification Kingdom: Fungi Division: Ascomycota Class: Sordiasomycetes Order: Sordariles Family: Sordiaceae Genus: Neurosporashear & B.O. Dodge, 1927 African species N. Bonarensis N. Brevispora N. Caffera N. Cal N. Cerealis N. Crassa N. Cratorophora N. Dictyophora N. Discta N. Dodgei N. Himalayensis N. Hippopotama N. Indica N. Intermedia N. . Reverse N. Kobi N. Lineolata N. Longispora N. Novoguineensis N. Pannonica N. Pseudocal N. Pseudoreticulata N. reticulata N. Sitoophila N. Tetrasperma Synonyms GelasiniSporaanixiella OnCom, made with Neurospora Intermedia. OnComensis Neurospora is a genus of ascomycete fungi. The name of the genus, which means “nervous spore”, refers to the characteristic striations on the spores resembling the axons. The best known species in this genus are Neurospora Crassa, a common model organism in biology. Intermediate neurospora var. OnComensis is believed to be the only mold belonging to Neurospora that is used in food production (to make OnCom). [1] The characteristics The Neurospora species are molds with widely diffused colonies, with an abundant production of Ascomta. They are superficial or submerged, perithecial and obtiolate or cleistotecizzal and not obstructed, hairy or glabrous, dark coloured. Peridium membranaceous, cylindrical ASCI, clavate or subspeciesous, with a persistent or evanescent wall, usually with a thickened annular structure and not amyloid at the apex, usually 8-sporta. Amply fusiform, ellipsoidal, or almost spherical, unicellular, hyaline to yellowish brown or olive-brown ascospores, becoming dark and opaque when ripe, wall ascospore with longitudinal or pitted ribs, occasionally almost smooth, 1-2 (but rarely up to 12) The pores of the germs placed at the ends of the ascospores, the gelatinous sheaths or the appendages are absent. Anamorphs are known in a number small of species, belonging to the genus Chrysonilia imperfect fungi. Type of species The genus is Neurospora Sitoophila Shear [2] Systemics The former Genus Gelasinospora is closely related and unresolved as a distinct monophyletic group, [3] so the former genus is now included as a synonym of neurospora. [2] As organisms of the model Neurospora is widely used in genetics as a model organism (particularly N. Crassa) because it reproduces rapidly, is easy to grow, [4] and can survive on minimal averages (inorganic salts, glucose, water and biotin in agar). The first studies of sexual reproduction in Neurospora were carried out by B. O. Dodge. Neurospora was later used by George Wells Beadle and Edward Lawrie Tatum in X-ray mutation experiments to discover mutants that differ in nutritional requirements. The results of their experiments led them to the only hypothesis of the Gene-One enzyme, in which they postulated that each enzyme was encoded with its own gene. Research with Neurospora is reported every six months at the Neurospora meeting in Asilomar, California, coordinated by the Fungal Genetics Stock Center. Mutant and wild strains of Neurospora are available at the FGSC. The FGSC also publishes fungal genetics reports. Important People in Neurospora Research: Bernard Ogilvie Dodge (1872 â ¬ ”1960) [4] George Beadle (Nobel Prize in Physiology or Medicine, 1958) Edward Tatum (Nobel Prize in Physiology or Medicine, 1958) Esther Lederberg [5] [6] [7] Norman Giles [7] David Perkins Robert Metzenberg Norman Horowitz Herschel K. Mitchell [8] Mary B. Mitchell [9] Martha Merrow [10] Sexual reproduction in the heterothallic species crassa neurospora crassa, interaction of haploid strains of the opposite type of mating is necessary for the occurrence of sexual reproduction production of ascospora for meiosis. Ascospore, then restore the haploid individuals of both types of mating. The stage of the life cycle is therefore predominantly However, at the time of mating, the nuclei do not merge immediately: Karyogamy is delayed until the beginning of the onset of meiosis. The resulting mycelium is is a heterokaryon, and is neither diploid nor haploid. The genus Neurospora includes also omotallic species in which a single haploid individual carries both mating type loci which can undergo self-fertilization leading to meiosis and sexual reproduction. African Neurospora is an example of such a species. [11][12] In addition, some “Neurospora” species are called pseudoomotalliche. They carry both types of mating, but in separate nuclei in the same individual. Two haploid nuclei originating from the same meiosis are packed in an ascospore. [13] The individual is thus permanently heterokaryotic. Examples of this coupling system include “Neurospora tetrasperma” and “Neurospora tetraspora.” Since heterothallic species necessarily undergo some degree of overrun, they may benefit from increased selection efficiency due to higher effective recombination rates. On the contrary, pseudoomotallic and omotallic species do not exceed (or rarely) and do not experience these benefits: in omotallic species a reduced efficiency of negative selection has been shown. [14] However, both hetero- and pseudoomotallic species benefit from the masking of deleterious recessive alleles in the heterokaryotic phase. In addition, all species derive the benefits of meiosis which include the removal of stress-induced DNA damage from recombinant homologous repair, and the formation of stress-resistant ascospores. See also Ascomycota Ascospore Genetic variability Eterothallic Homologous recombination Homothallism Type of mating Meiosis Neurospora crassa References ^ Ho, C.C. (April 1986). “Identity and characteristics of Neurospora intermedia responsible for oncom fermentation in Indonesia.” Food microbiology. 3 (2): 115â132. doi:10.1016/S0740-0020 (86) 80 035-1. ^ a b Garcia, D.; et al. (2004). “A synoxist and recirculation of Neurospora (syn. Gelasinospora) based on data from It's called the "ultrastructural and 28S rDNA." Res. 108 (10): 1119-1142. doi:10.1017/s0953756204000218. zwei:10.1017/s09537562000218. S2CIDI equals 160; 31 673 455. ^ Cai, L.; et al. 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Â «The analyzes of the sequences expressed in the neurospora reveal a rapid evolution of the genes associated with the first stages of sexual reproduction in mushrooms." BMC EVOL. Biol. 12 (3): 649â € 663. DOI: 10.1016 / J.Ympev.2011.03.023. PMIDÃ, 21Â 439Â 389.cs1 Maint: Multiple Names: Authors List (link) External media connections related to neurospora at Wikimedia Commons [1] Fungal Genetics Stock Center [2] Neurospora meeting website Neurospora strains at the FGSC project on Genome of the neurospora Fungal Cell Biology Group at the University of Edinburgh, United Kingdom. Site includes many films and images of neurospora. [3] Mushroom genetic reports [4] Montenegro-Montero A. (2010) Â «The Almighty Fungi: The Revolutionary Neurospora Crassa.â €» A historical view of the numerous contributions of this body to molecular biology. [5] Neurospora genome Crassa from « Â « ? Title = neurospora & Oldid = 1059689756 »

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