

Rev. Inst. Med. Trop. Sao Paulo
57(5):458-460, September-October, 2015
<http://dx.doi.org/10.1590/S0036-46652015000500018>

LETTER TO THE EDITOR

DIVERSITY AND INFECTIVITY POTENTIAL OF EMERGING FUNGI IN AN AREA OF *BABAÇU* TREES IN THE STATE OF *MARANHÃO*, BRAZIL

Dear Sir,

The *babaçu* coconut breakers are often affected by diseases that seem having obvious relationship between their type of occupation and development of fungal infection^{2,4}.

We studied human mycoses in conjunctiva, nails (onycholytic lesions) and skin lesions in 100 *babaçu* coconut breakers of *Esperantinópolis*, *Maranhão* (Fig. 1), and studied the ground near the *babaçu* palms, coconut shells and palm leaves (Fig. 2), for taxonomic classification of fungi by direct mycological and microscopic examination. We also performed direct examination with KOH for human mycoses. After the growth of colonies, these were analyzed by light microscopy using blue lactophenol dye. Colonies of interest were subcultured in tubes of 16 x 150, containing Sabouraud agar medium and subsequently was prepared microcultivation for taxonomic identification. The study was approved by the Ethics Committee in Research of the University Hospital of UFMA.



Fig. 1 - Coconut breaker from *Esperantinópolis*, *Maranhão* (MA), Brazil.

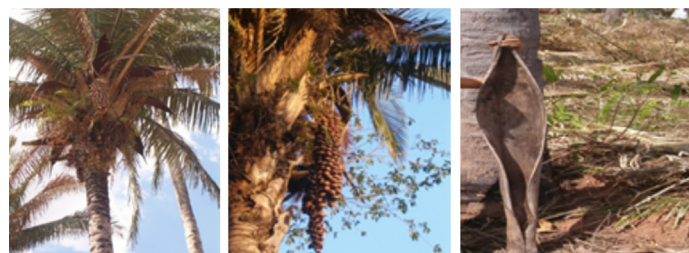


Fig. 2 - *Babaçu* palm coconut (leaf, bark and soil).

Of the 20 samples taken from the soil, we obtained 13 isolates of fungi, whose macro and micromorphological characteristics of the colonies allowed the diagnosis of *Aspergillus niger*, *Penicillium* sp., and *Scedosporium* sp., besides others, *Fusarium* sp. not being found. In coconut shells *Aspergillus niger* and *Penicillium* sp. were found; in almond coconut, *Aspergillus niger*, *A. versicolor*, *A. flavus*, and *Penicillium* sp. were obtained. On palm leaves we identified *Aspergillus niger* and *Penicillium* sp. (Table 1). Twenty-five nail samples that showed suggestive alterations of onycholytic lesions¹ (Fig. 3) were harvested; eleven positive cultures for yeast, *Neosartorya spinosa*, and *Trichophyton* sp. *Rhizopus* sp. and *Curvularia* sp. (Fig. 4) were isolated. Seventy-two fungal isolates were obtained from the conjunctiva, the most common were filamentous fungi from 58 (80.57%) breakers and 14 samples (19.43%) were found corresponding to *Candida* sp., and the *Fusarium* sp. occurred in only one sample (Fig. 5 and Table 2)³.

All individuals involved in this study were *babaçu* coconut breakers.

Table 1

Distribution and taxonomic classification of fungi isolated from soil near the *babaçu* palms, *babaçu* coconut shells, *babaçu* leaves cachopa and *babaçu* palm concavity

Variables	n	%
Fungi Isolation from Soil		
<i>Aspergillus niger</i>	7	53.8
<i>Aspergillus nidulans</i>	1	7.7
<i>Penicillium</i> sp.	2	15.4
<i>Scedosporium</i> sp.	2	15.4
<i>Syncephalastrum</i> sp.	1	7.7
Fungi Isolation from coconut shell		
<i>Aspergillus niger</i>	2	50.0
<i>Penicillium</i> sp.	2	50.0
Fungi isolation from coconut		
<i>Aspergillus niger</i>	8	66.7
<i>Aspergillus versicolor</i>	2	16.7
<i>Aspergillus flavus</i>	1	8.3
<i>Penicillium</i> sp.	1	8.3
Fungi isolation from palm leaf		
<i>Aspergillus niger</i>	6	85.7
<i>Penicillium</i> sp.	1	14.3



Fig. 3 - Onycholytic lesions in a *babaçu* coconut breaker.

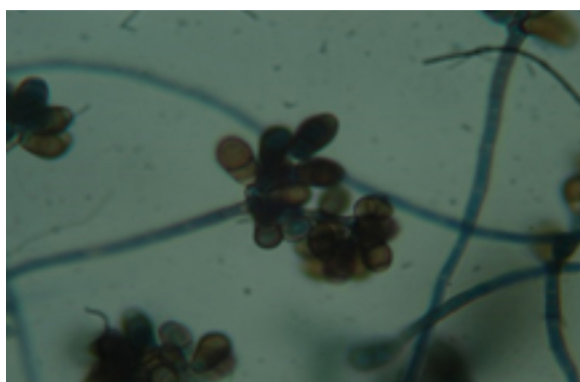


Fig. 4 - *Curvularia* sp. isolated from samples of nails from *babaçu* coconut breakers.

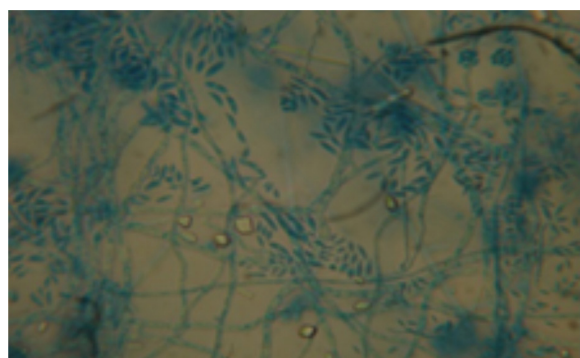


Fig. 5 - *Fusarium* sp. isolated from the conjunctiva of *babaçu* coconut breakers.

There was a greater isolation of fungi in the study group compared to the control group (Table 3). Regarding the fungi isolated from the conjunctiva, there was agreement with the literature. The treatment used in most cases was drops based on topical antibiotics and corticosteroids, which may predispose to further infection³.

The lack of knowledge on *Fusarium* in soil, palm bark, almond, palm leaves, and *babaçu* coconuts, albeit in a preliminary way, has established a plant model for studies of biological control of *Fusarium* sp. However, in the onycholytic lesions we found the genres *Neosartorya*

Table 2

Distribution and taxonomic classification of fungi isolated from the nail and ocular conjunctiva of *babaçu* coconut breakers

Variables	n	%
Fungi isolation from nails		
Yeasts	4	36.4
<i>Neosartorya spinosa</i>	2	18.2
<i>Tricophyton</i> sp.	2	18.2
<i>Rhizopus</i> sp.	2	18.2
<i>Curvularia</i> sp.	1	9.0
Fungi isolation from ocular conjunctiva		
<i>Aspergillus</i> sp.	24	33.33
<i>Aspergillus niger</i>	11	15.27
<i>Candida</i> sp.	11	15.27
<i>Penicillium</i>	07	9.72
<i>Syncephalastrum</i> sp.	03	4.16
<i>Nigrospora</i> sp.	03	4.16
<i>Malassezia</i> sp.	03	4.16
<i>Sporothrix</i> sp.	02	2.77
<i>Cladosporium</i> sp.	02	2.77
<i>Aspergillus versicolor</i>	01	1.38
<i>Aspergillus flavus</i>	01	1.38
<i>Aspergillus nidulans</i>	01	1.38
<i>Cladophialophora</i> sp.	01	1.38
<i>Trichophyton</i> sp.	01	1.38
<i>Fusarium</i> sp.	01	1.38

Table 3

Frequency of fungal isolates in a sample from ocular conjunctiva and its relationship to the activity performed

Professional Activity	Fungi						Total	
	Yeast		<i>Penicillium</i> sp		Other Fungi		F	%
	F	%	F	%	F	%		
Coconut breakers	11	15.27	7	9.72	54	75	72	100
Control group	8	66.7	1	8.3	3	25	12	100

$X^2= 15.819$; $p = 0.0004$; Degrees of Freedom = 2.

spinosa, *Rhizopus* sp., and *Curvularia* sp. showing that other emerging and opportunistic filamentous fungi may be isolated. The fungi found in this study were present in the environment. As the coconut breakers suffer constant injuries resulting from their work, the fungi penetrate by percutaneous inoculation¹.

In conclusion, exposure to geophilic fungi and fitopathogens linked to the work of *babaçu* coconuts extraction has been recorded as mycoses which require clinical and laboratory diagnosis that will result in preventive measures, thus justifying the economic and social importance of this work activity.

Maria do Desterro Soares Brandão NASCIMENTO(1,5)
Valéria Maria Sousa LEITÃO(2)
Marcos Antonio Custódio Neto da SILVA(3)
Anna Cyntia Brandão NASCIMENTO(4)
Geusa Felipa de Barros BEZERRA(1)
Graça Maria de Castro VIANA(1)

(1) *Universidade Federal do Maranhão, Departamento de Patologia, São Luís, Maranhão, Brasil.*

E-mails: cnsd_ma@uol.com.br; geusabezerra@yahoo.com.br; gracaviana@globo.com

(2) *Universidade de São Paulo, Depto. Ginecologia, São Paulo, SP, Brasil.* E-mail: valeriasleitao@yahoo.com.br

(3) *Universidade Federal do Maranhão, São Luís, Maranhão, Brasil.* E-mail: marcos_antonio456@hotmail.com

(4) *Universidade Federal do Maranhão, Hospital Universitário.* E-mail: annacyntia@hotmail.com

(5) *Universidade Estadual do Maranhão, Centro de Estudos Superiores de Caxias.*

Correspondence to: Prof^a. Dr^a. Maria do Desterro Soares Brandão Nascimento. Depto de Patologia/NIBA/UFMA. Av. dos Portugueses 1966, Prédio do CCBS, Bloco 3, Sala 3A, Núcleo de Imunologia, Cidade Universitária do Bacanga, Universidade Federal do Maranhão. 65080-040 São Luís, MA, Brasil.

Tel.: +55 98 3272-8535;

Fax: +55 98 3272-8535. E-mail: E-mail:cnsd_ma@uol.com.br

Supported by: Foundation for Research and Scientific and Technological Development of the State of Maranhão (FAPEMA). Notice PPSUS 2004

Process No. 4.01-1408-05

REFERENCES

1. Araújo AJG, Bastos OMP, Souza MAJ, Oliveira JC. Onicomioses por fungos emergentes: análise clínica, diagnóstico laboratorial e revisão. *An Bras Dermatol*. 2003;78:445-55.
2. Bueno CJ, Ambrósio MMQ, Souza NL. Produção e avaliação da sobrevivência de estruturas de resistência de fungos fitopatogênicos habitantes do solo. *Summa Phytopathol*. 2007;33:47-55.
3. Höfling-Lima AL, Forseto A, Duprat JP, Andrade A, Souza LB, Godoy P, *et al*. Estudo laboratorial das micoses oculares e fatores associados às ceratites. *Arq Bras Oftalmol*. 2005;68:21-7.
4. Santos AF, Bezerra JL, Tessmann DJ, Poltronieri LS. Ocorrência de *Curvularia senegalensis* em pupunheira e palmeira real no Brasil. *Fitopatol Bras*. 2003;28:204.