

Identifikasi kapang dari manuskrip berbahan kertas eropa berdasarkan analisis sekuens daerah ITS pada rDNA = Identification of moulds from old european paper manuscripts based on sequence analysis of rDNA ITS region

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Abstrak

Penelitian ini bertujuan untuk mengidentifikasi 16 strain kapang dari tujuh manuskrip kuno berbahan kertas Eropa dengan analisis sekuens daerah internal transcribed spacers (ITS) pada rDNA dan melakukan deskripsi morfologi terhadap kapang-kapang tersebut. Kapang tersebut berasal dari manuskrip kuno asal Keraton Kasepuhan Cirebon dan Perpustakaan Fakultas Ilmu Pengetahuan Budaya Universitas Indonesia (FIB UI). Amplifikasi daerah ITS rDNA menggunakan forward primer ITS 1 dan reverse primer ITS 4. Deskripsi morfologi dilakukan pada medium Czapek's Dox Agar (CDA). Panjang fragmen daerah ITS berdasarkan elektroforesis gel dari kapang genus *Aspergillus* adalah 500--800 pb, *Penicillium* 500--600 pb, dan mycelia sterilia 550--800 pb. Satu strain kapang merupakan anggota filum Ascomycota, kelas Loculoascomycetes, ordo Dothideales, famili Davidiellaceae, dan memiliki homologi sekuens daerah ITS dengan spesies terdekatnya, yaitu *Cladosporium cladosporioides* (Fresen.).

Sebanyak 13 strain merupakan anggota filum Ascomycota, kelas Plectomycetes, ordo Eurotiales, famili Trichocomaceae, dan memiliki homologi sekuens daerah ITS dengan spesies terdekatnya, yaitu *Aspergillus flavus* Link. (satu strain), *Aspergillus oryzae* Cohn. (dua strain), *Aspergillus niger* (dua strain), *Penicillium citrinum* Thom (empat strain), *Penicillium griseofulvum* Drecks. (satu strain), *Penicillium janthinellum* Biourd (satu strain), *Eurotium amstelodami* L. Mangin (satu strain), dan *Eurotium rubrum* Jos. Konig. (satu strain). Dua strain kapang lainnya, yaitu satu strain *Aspergillus* sp. dan satu strain *Penicillium* sp. belum berhasil diidentifikasi hingga tingkat spesies.

.....The aim of this research was to identify 16 strains of moulds from seven old European paper manuscripts based on sequence analysis of ITS region rDNA and to describe their morphology. The moulds were isolated from old manuscripts from Keraton Kasepuhan Cirebon and the library of Faculty of Humanities University of Indonesia. ITS 1 and ITS 4 primers were used as forward and reverse primers for PCR, respectively. The mould's morphology was examined on Czapek's Dox Agar (CDA). The lengths of ITS region of genus *Aspergillus* based on gel electrophoresis were on the range of 500--800 bp, *Penicillium* 500--600 bp, and mycelia sterilia 550--800 bp. One strain belongs to phylum Ascomycota, class Loculoascomycetes, order Dothideales, family Davidiellaceae, and showed ITS region similarity to *Cladosporium cladosporioides* (Fresen.).

Thirteen strains belong to phylum Ascomycota, class Plectomycetes, order Eurotiales, family Trichocomaceae, and showed ITS region similarities to *Aspergillus flavus* Link. (one strain), *Aspergillus oryzae* Cohn. (two strains), *Aspergillus niger* (two strains), *Penicillium citrinum* Thom (four strains), *Penicillium griseofulvum* Drecks. (one strain), *Penicillium janthinellum* Biourd (one strain), *Eurotium amstelodami* L. Mangin (one strain), and *Eurotium rubrum* Jos. Konig. (one strain). One strain of *Aspergillus* sp. and one strain of *Penicillium* sp. were unable to be identified to species level.