

Isolation of antioxidant compound from endophytic fungi *Acremonium* sp. from the twigs of kandis gajah = Isolasi senyawa antioksidan dari jamur endofitik *Acremonium* sp. dari ranting kandis gajah (*Garcinia griffithii*)

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Abstrak

ABSTRACT

Jamur endofitik *Chrosonilia sitophila*, *Acremonium* sp., dan *Penicillium* sp. telah diisolasi dari jaringan ranting tumbuhan kandis gajah. Ketiga strain kapang tersebut ditumbuhkan dalam 3 l medium potato dextrose broth (PDB) pada temperatur kamar selama 28 hari. Masing-masing biakan disaring untuk memisahkan miselium dan dilanjutkan dengan ekstraksi dan evaporasi. Semua ekstrak dilakukan uji aktivitas antioksidan berdasarkan aktivitas peredaman radikal bebas 1,1-diphenyl-2-picrylhydrazyl (DPPH). Ekstrak *Acremonium* sp. memiliki aktivitas yang kuat dengan nilai IC₅₀ 10,3% g/ml yaitu setara dengan aktivitas asam askorbat dengan nilai IC₅₀ 9,8% g/ml. Ekstrak aktif selanjutnya dikromatografi kolom dan diteruskan dengan rekromatografi hingga diperoleh senyawa antioksidan murni berupa minyak bewarna kuning. Struktur molekul ditentukan berdasarkan data spektroskopi yang meliputi ¹H-NMR, ¹³C-NMR, HMQC, HMBC, dan COSY. Senyawa hasil isolasi adalah golongan seskuiterpen yaitu 3,5-dihidroksi-2,5-dimetiltrideka-2,9,11-trien-4,8-dion.

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Abstract

The endophytic fungi *Chrosonilia sitophila*, *Acremonium* sp., and *Penicillium* sp. have been isolated from the tissues of the twigs of kandis gajah. The fungal strains were grown in 3 l potato dextrose broth medium (PDB) at room temperature for 28 days. To extract the antioxidant compounds, the cultures broth were filtered for mycelia removal followed by extraction and evaporation. All of the extracts were evaluated for their antioxidant activities by using 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging activity. The extract of *Acremonium* sp. had strong activity with IC₅₀ value of 10.3% g/ml, which is equivalent to ascorbic acid activity with IC₅₀ value of 9.8% g/ml. The extract was subjected to column chromatography on Si gel twice to obtain a high purity antioxidant compound in the form of yellow oil. The molecular structure was determined based on spectroscopic data, including ¹H-NMR, ¹³C-NMR, HMQC, HMBC, and COSY. The compound was determined as sesquiterpene 3,5-dihydroxy-2,5-dimethyltrideca-2,9,11-triene-4,8-dione.