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)

Elfita, author

Abstrak

ABSTRACT
Jamur endofitik Chrisonilia 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 10,3μ g/ml yaitu setara dengan aktivitas asam askorbat dengan nilai IC50 9,8μ 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 1 H-NMR, 13 C-NMR, HMQC, HMBC, dan COSY. Senyawa hasil isolasi adalah golongan seskuiterpen yaitu 3,5-dihidroksi-2,5-dimetiltrideka-2,9,11-triena-,8-dion.
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Abstract
The endophytic fungi Chrisonilia 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 10.3μ g/ml, which is equivalent to ascorbic acid activity with IC50 value of 9.8μ 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 1 H-NMR, 13 C-NMR, HMQC, HMBC, and COSY. The compound was determined as sesquiterpene 3,5-dihydroxy-2,5-dimethyltrideca-2,9,11-triene-4,8-dione.