

ABSTRAK

Giberelin merupakan hormon pertumbuhan tanaman yang berperan merangsang pertumbuhan organ melalui peningkatan perpanjangan sel serta pembelahan sel. Giberelin dapat disintesis dari *Plant Growth Promoting Rhizobacteria*, salah satunya ialah *B. subtilis* B.46. Penelitian ini bertujuan untuk mengetahui kondisi optimum ekstraksi serta identifikasi struktur senyawa giberelin dari *B. subtilis* B.46 asal tanah rizosfer kentang Desa Pratin Purbalingga. Ekstraksi giberelin dari *B. subtilis* B.46 dilakukan pada kondisi optimum yaitu pada umur inokulum 6 jam dan waktu inkubasi giberelin optimum 24 jam. Hasil ekstrak yang didapatkan merupakan ekstrak kasar *B. subtilis* B.46 yang diduga mengandung senyawa giberelin dengan konsentrasi 34,90 ppm. Identifikasi *B. subtilis* B.46 yang diduga mengandung senyawa giberelin dilakukan dengan metode KLT, spektrofotometri UV, dan FTIR. Hasil identifikasi dengan metode KLT didapatkan harga Rf 0,42 dan 0,90. Identifikasi dengan spektrofotometer UV memberikan serapan pada panjang gelombang maksimum 200-300 nm. Hasil identifikasi FTIR terhadap ekstrak *B. subtilis* B.46 menunjukkan adanya gugus -OH ($3441,01\text{ cm}^{-1}$), gugus karbonil ($1635,64\text{ cm}^{-1}$), gugus-CH₃ ($1381,03\text{ cm}^{-1}$), dan gugus C-O ($1018,41\text{ cm}^{-1}$), yang juga terdapat pada senyawa standar giberelin.

Kata kunci : *Bacillus subtilis*, Giberelin, PGPR, rizobakteri



ABSTRACT

Gibberellin is a plant growth hormone that plays a role in stimulating organ growth by increasing cell extension and cell division. Gibberellins can be synthesized from Plant Growth Promoting Rhizobacteria, one of which is *B. subtilis* B.46. This study was conducted to determine the optimum extraction conditions and to identify the structure of the gibberellin compound from *B. subtilis* B.46 from the potato rhizosphere of Pratin Purbalingga. Extraction of gibberellin from *B. subtilis* B.46 was carried out at optimum conditions, at 6 hours inoculum age and 24 hours of optimum gibberellin incubation time. The extract obtained was a crude extract of *B. subtilis* B.46 which was thought to contain gibberellins with a concentration of 34.90 ppm. Identification of *B. subtilis* B.46 which is suspected to contain gibberellin compounds was identified using TLC, UV spectrophotometry, and FTIR methods. The results of identification with the TLC method obtained an Rf value of 0.42 and 0,90. Identification with a UV spectrophotometer gave absorption at a maximum wavelength 200-300 nm. The FTIR identification of the extract of *B. subtilis* B.46 showed the presence of the –OH group (3441.01 cm⁻¹), the carbonyl group (1635.64 cm⁻¹), the -CH₃ group (1381.03 cm⁻¹), and the CO (1018.41 cm⁻¹), which is also present in the standard gibberellin compound.

Keywords: *Bacillus subtilis*, Gibberellin, PGPR, rhizobacteria

