

## INTISARI

Salah satu tantangan utama produksi pangan dunia adalah cekaman abiotik di antaranya berupa suhu ekstrem, kekeringan, dan salinitas. Padi sebagai salah satu tanaman pangan utama tergolong ke dalam kelompok tanaman dengan kepekaan yang cukup tinggi terhadap cekaman salinitas. PGPR sudah terbukti dapat membantu tanaman menghadapi cekaman kekeringan. Tujuan penelitian ini adalah untuk melihat perubahan metabolit yang terjadi pada padi yang tercekam salinitas dengan inokulasi PGPR dibandingkan dengan padi tanpa inokulasi. Padi tanpa perlakuan (S0I0), dengan inokulasi (S0I1), tercekam salinitas (S1I0), dan padi tercekam salinitas yang diinokulasi dengan PGPR (S1I1) ditanam di Rumah Kaca Fakultas Pertanian lalu sampel daun dianalisis dengan instrumen GC-MS di LPPT UGM. Peningkatan salinitas pada tanaman padi (S1I0) menunjukkan adanya penurunan karboksilat  $\alpha$ -linolenat (46,08%) dan linoleat (1,84%), serta meningkatkan produksi kelompok stearat (8,43%), palmitat (29,66%), antioksidan (2,05%), dan kelompok epoksida (21,64%). PGPR yang diinokulasi yaitu *Enterobacter flavescens* membantu tanaman padi (S1I1) dalam mengatasi cekaman salinitas yang ditunjukkan melalui jumlah karboksilat  $\alpha$ -linolenat (72,62%) dan linoleat (4,34%) yang kembali normal serta peningkatan kelompok antioksidan (3,92%) dan epoksida (5,92%) dalam jaringan tanaman.

Kata kunci: salinitas, padi, PGPR, metabolit.

## ABSTRACT

*One of the main challenges in global food production is abiotic stresses, including extreme temperatures, drought, and salinity. Rice as one of the main crops belongs to a group of plants with high sensitivity to salinity stress. PGPR (Plant Growth Promoting Rhizobacteria) has been demonstrated to alleviate drought stress in plants. The purpose of this study was to examine the metabolite changes in rice plants under salinity stress inoculated with osmotolerant rhizobacteria, compared to uninoculated plants. Untreated rice (S0I0), PGPR-inoculated (S0I1), saline-stressed (S1I0), and saline-stressed rice inoculated with PGPR (S1I1) were planted in the Greenhouse of Faculty of Agriculture in UGM. Leaf samples were extracted and analyzed using GC-MS instrument at LPPT UGM. It was found that increased salinity in rice plants (S1I0) resulted in the decrease of  $\alpha$ -linolenic (46.08%) and linoleic (1.84%) groups, and increased production of the stearate (8.43%), palmitate (29.66%), antioxidant (2.05%), and the epoxide (21.64%) groups. The inoculant, *Enterobacter flavescens*, helped rice plants (S1I1) in recovering from salt stress as indicated by the amount of  $\alpha$ -linolenic (72.62%) and linoleic (4.34%) groups which returned to normal as well as an increased amount in antioxidant (3.92%) and epoxides (5.92%) groups in plant tissues.*

*Keywords: salinity, rice, PGPR, metabolites.*