Pengukuran laju fiksasi nitrogen strain-strain Nostoc [Vaucher 1803] Bornet et Flahault 1886 dengan metode Acetylene Reduction Assay (ARA)

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Abstrak

Telah dilakukan penelitian untuk mengetahui laju fiksasi nitrogen strain-strain Nostoc [Vaucher 1803] Bornet et Flahault 1886. Penelitian menggunakan 8 strain Nostoc koleksi Laboratorium Taksonomi Tumbuhan, Departemen Biologi, FMIPA UI. Penelitian menggunakan metode Acetylene Reduction Assay (ARA) dengan 2 ulangan untuk setiap strain Nostoc. Pengujian dilakukan pada strain yang telah berumur 21 hari. Biomassa berat basah strain Nostoc yang digunakan adalah 0,1 gram. Masing-masing strain diinkubasi selama 30, 60, dan 90 menit dengan menambahkan 1 ml gas asetilen.
Hasil penelitian menunjukkan data yang bervariasi untuk masing-masing strain Nostoc pada masing-masing waktu inkubasi. Sebanyak 6 strain Nostoc menunjukkan nilai laju fiksasi nitrogen tertinggi pada waktu inkubasi 30 menit. Sebanyak 2 strain Nostoc menunjukkan nilai laju fiksasi nitrogen tertinggi pada waktu inkubasi 60 menit. Strain Nostoc BTM6-02 menunjukkan nilai laju fiksasi nitrogen yang paling tinggi yaitu 3892,5 mol (dicapai pada inkubasi 60 menit). Strain Nostoc CPG24 menunjukkan nilai laju fiksasi nitrogen yang paling rendah, yaitu 292,44 mol (dicapai pada inkubasi 90 menit).
.....The research of nitrogen fixation rate of Nostoc [Vaucher 1803] Bornet et Flahault 1886 have been done. Eight strains of Nostoc from Plant Taxonomy Culture Collection, Department of Biology, Faculty of Mathematics & Natural Sciences, University of Indonesia, were used. The measurement of nitrogen fixation used Acetylene Reduction Assay (ARA) method with 2 samples for each strain. Experiments were conducted using strains at 21st day age. Wet weight of each strain was 0.1 gram. Then, each Nostoc strain was incubated with addition of 1 ml acetylene for 30, 60, and 90 minutes.
The experiment result showed a different value for each Nostoc strain in every incubation times. Six Nostoc strains showed the highest value of nitrogen fixation after incubated for 30 minutes. Two Nostoc strains showed the highest value of nitrogen fixation after incubated for 60 minutes. Nitrogen fixation rate of BTM6-02 reached the highest value of 3892.5 mol after incubated for 60 minutes. Nitrogen fixation rate of CPG24 was the lowest ones (292.44 mol) after incubated for 90 minutes.