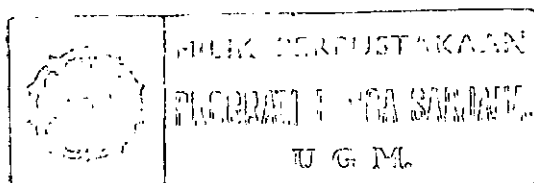


## **Pengaruh Pemanfaatan Pupuk Organik Pada Tanah Tercemar Pb Akibat Emisi Kendaraan Bermotor Terhadap Serapan Pb Tanaman Sawi (*Brassica juncea* L.)**

Penelitian ini bertujuan untuk mengetahui pengaruh pupuk organik terhadap kandungan Pb di dalam tanah dan serapan Pb jaringan tanaman serta mengetahui pengaruh jenis tanah terhadap kandungan Pb di dalam tanah dan serapan Pb jaringan tanaman. Dalam penelitian ini menggunakan tanaman uji sawi (*Brassica juncea* L.) karena tanaman ini banyak dibudidayakan dan berumur pendek.

Penelitian ini menggunakan Rancangan Acak Lengkap Faktorial dengan 2 faktor yaitu pertama pupuk yang terdiri atas tanpa pemupukan (P0), pupuk organik (P1) dan pupuk kimia (P2). Faktor tanah terdiri atas regosol belum tercemar (T1), regosol tercemar (T2), grumusol belum tercemar (T3) dan grumusol tercemar (T4). Pengambilan sampel tanah untuk penelitian ini dari lokasi Jalan Wates Yogyakarta.

Jalan Wates mempunyai kepadatan lalu lintas 17.473 kendaraan per hari dengan jumlah kendaraan bermotor sebesar 14.985 (85,94%) per hari. Hasil penelitian awal menunjukkan bahwa regosol tercemar mempunyai Pb total 40,61 ppm dan grumusol tercemar mengandung Pb total 44,61 ppm sehingga tanah tersebut dapat dikatakan tercemar rendah. Pada penggunaan pupuk organik mempunyai Pb total tanah tinggi tetapi jumlah Pb tersedia yang dapat diserap tanaman rendah sehingga menurunkan jumlah Pb pada akar tanaman sawi. Penggunaan pupuk anorganik dapat meningkatkan mobilisasi logam Pb sehingga meningkatkan jumlah Pb tersedia tanah. Grumusol mempunyai pH tinggi, KPK tinggi dan tekstur halus sehingga dapat mengakumulasi Pb total lebih tinggi dan Pb tersedia lebih rendah daripada regosol sehingga serapan Pb akar tanaman sawi lebih sedikit. Tanaman menyerap logam berat tidak hanya tergantung pada jumlah totalnya tapi pada jumlah yang tersedia pada larutan tanah.



## ABSTRACT

### **The Effect of Organic Fertilizer Usage on Pb Contaminated Soil by Vehicle Emission Against The Pb Uptake of Mustard Greens (*Brassica juncea* L)**

The aims of this research are 1) to study the effect of fertilizer organic usage against the Pb of soil and Pb uptake plant tissue and 2) to study the effect of soil type against the Pb of soil and Pb uptake plant tissue. This research was applying the mustard greens (*Brassica juncea* L.) as a plant treatment, because this plant has a short time cultivation and mass-cultured.

Factorial completed random design was chosen in this method with 2 factors i.e. the fertilizer which consist of unfertilizing (P0), organic fertilizer (P1), anorganic fertilizer (P2). Soil type factors which consist of uncontaminated regosol (T1), contaminated regosol (T2), uncontaminated grumusol (T3) and contaminated grumusol (T4). Those all samples are collected in around of Jalan Wates Yogyakarta.

Jalan Wates had a traffic density of 17.473 vehicles per day with motorized vehicles are 14.985/day (84,94%). The result of pre-research showed that contaminated regosol and contaminated grumusol are respectively have 40,61 ppm and 44,61 ppm of total Pb on soil, so that soil sampling in this research area is slightly contaminated. Organic fertilizer usage have higher total Pb on soil, lower availability of Pb which can be absorb by plant, so the consequence is decreasing mustard greens roots uptake. Anorganic fertilizer is able to rising the heavy metal-Pb mobilisation so that rising Pb availability on soil. The distinguish of these soils are explained in high pH, fine texture and high CEC of grumusol's so that these fenomena are able to more accumulate total Pb and its more fairly availability due to a fairly roots Pb uptake of regosols's. Plant root uptake a heavy metal-Pb is independently of total Pb on soil but just be availability of Pb on soil solution.