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11th ESAFS

**PROCEEDINGS OF
11th International Conference
The East and Southeast Asia Federation
of Soil Science Societies**

**LAND FOR SUSTAINING FOOD
AND ENERGY SECURITY**

21-24 October, 2013

IPB International Convention Center - Bogor, Indonesia



Indonesian Society of Soil Science

ISBN 978-979-19904-1-7



East and Southeast Asia Federation of
Soil Science Societies

**PROCEEDINGS OF THE 11th INTERNATIONAL CONFERENCE
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SOIL SCIENCE SOCIETIES**

Land for Sustaining Food and Energy Security

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**Paper and posters presented
at 11th International Conference of
The East and Southeast Asia Federation of Soil Science Societies
IPB International Convention Center, Botani Square
Bogor, Indonesia
21-24 October 2013**

ISBN 978-979-19904-1-7

Publish by :

Indonesian Society of Soil Science

Sekretariat Gedung BPN RI, Jl. H. A. Salim 54 Jakarta Pusat

e-mail: sekretariathiti_pusat@yahoo.co.id ; web : <http://www.hiti.or.id>

Printed by:

Indonesian Society of Soil Science

Indonesia

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ASSESSMENT OF Pb CONTENT OF MOTOR VEHICLE EMISSIONS OF ORIGIN
ON SOIL AND PLANT IN PULAU SEMAMBU VILLAGE
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Motor vehicle emissions of lead-containing metal will cause soil pollution. This study aimed to identify the origin of lead content of motor vehicle emissions on soil and plants in Semambu Island Village, Km 22, Highways Indralaya - Palembang.

Soil sampling and vegetation is in Semambu Island Village, Km 22, Highways Indralaya – Palembang area in the range of 500 m from the edge of the road. The average content of lead in soil at the site of research, by the roadside, 100 m and 200 m from the source obtained the average amount of lead content in a row at 4.33 mg kg⁻¹, 3.33 mg kg⁻¹ and 2, 40 mg kg⁻¹, the analysis of lead content in soil at the research area has decreased in line with increasing distance from the source, but does not exceed the safe threshold is determined. The average of lead content of three types of leaves of plants in study sites in areas closest to the source obtained the average amount of lead content of 90 mg kg⁻¹, while in the total area of 100 m amounted to 26.6 mg kg⁻¹ and the 200 area m, it was not measurable. The content of lead in roadside vegetation and 100 m from the source has decreased along with the increasing distance from the source. Lead content in the leaves until at a distance of 100 m from the source exceeds the safe threshold has been determined.

Lead is one of the pollutants that can accumulate in the soil and absorbed by plants. According to the Indonesian Soil Research Institute (2002), the threshold of lead in agricultural soil was 12.75 mg kg⁻¹ and in plants at 2 mg kg⁻¹. If the lead content in soil and plants exceeds that threshold, it can be harmful effects, both for plants that absorb them and for humans who consume the plants that contain lead them. Motor vehicle emissions of lead-containing metal will cause pollution of soil. Environmental pollution by lead is mostly from human activities that extract and exploit the metal. Pollutants (pollutants) derived from the gas motor vehicle generally in the form of residual combustion gases and particles of heavy metals like lead. Lead is released from motor vehicles an average size from 0.02 to 0.05 µm. This study used descriptive method by doing detailed survey. Soil and vegetation sampling conducted by the transects, each transect is 250 m and taken as many as three transects. Distance sampling soil and vegetation at a distance of 5 m, 105 m, 205 m from the edge of the road. The depth was 0-30 cm of soil samples. The average per hour of the vehicles passed on the research location is 1532 units per hour. If the average per hour of them are 1532 units per hour, so in a day the intensity of the vehicles can become 36.768 units per day. This big amount of vehicles is strongly estimated has positive correlation to the concentration of lead in the research location. From the result data about the content of lead in the soil at the research location, there's difference in lead content in every area of sample taking. In the closest area from the source, that is at the edge of the street, the total average of lead contained is 4,33 mg/kg while on the distance of 100 m and 200 m from the source the total average of lead contained is 3,33 mg/kg and 2,40 mg/kg. The result for lead content analysis from three kinds of plant leaves at the research location in the closest area from the source showed that the total average of the lead content is 90 mg/kg, in the area which is 100 m in distance from the lead content source is 26,6 mg/kg and for the 200 m areal the content of lead is unmeasured.



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CERTIFICATE



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Adipati Napoleon

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