

Title: PM10 and 16 toxic PAHs congeners found from traffic roadsides in Chiang Mai Thailand

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Abstract

Chiang Mai is one of the biggest city in Thailand and it has beautiful natural resources and incredible culture. There are many tourists who are Thai and from any other countries in the world come to visit Chiang Mai at least 9 million people in 2015. This is the one of factors that create traffic jams in Chiang Mai city. This study is to measurement PM10 and 16- toxic congeners of PAHs from roadsides in Chiang Mai. The equipment that is used to measure the PM10 is a GENT sampler with 37- mm GFF filter and air flow rate is 20 lite per min at least 7 hour per sample. They are sampled by 3 hotspot sites and duplicated. Each sampling site is to measure with non- traffic condition (7. 30 am- 14. 30 pm) and traffic condition (14. 40 pm- 22. 00 pm). Then they are 12 samples in this study. 16 toxic congeners of PAHs are analysis by GC/MS with internal standards. The results show that PM10 are most found from time 14.40 to 22.00 pm. with concentrations 98. 5 $\mu\text{g}/\text{m}^3$ and 91. 95 $\mu\text{g}/\text{m}^3$ that are from the sixth and eighth samples, respectively. The total PAHs concentration are maximum 62.81 ng/m^3 with 14.24 $\text{ng-TEQ}/\text{m}^3$ from the eighth sample. The other one is 40. 78 ng/m^3 with 7. 73 $\text{ng- TEQ}/\text{m}^3$ from the fourth sample. The minimum PM10 concentration are 10. 48 and 14. 76 $\mu\text{g}/\text{m}^3$ that are from the first site. Also total PAHs concentration are 21.99 (the first sample) and 20.89 (the eleventh sample) ng/m^3 with 3. 14 and 3. 16 $\text{ng- TEQ}/\text{m}^3$. The minimum PM10 and total PAHs are found from non- traffic condition. With traffic condition, there are possible to find the higher PM10 and 16-toxic PAHs from Chiang Mai roadsides, the more risk to local people and tourists.

Keywords: PM10, 16-PAHs congeners, traffic roadsides, Chiang Mai