M075 TRACE ELEMENTS IN AIRBORNE PARTICULATE MATTER FROM AN INDUSTRIAL COMPLEX AREAOF KOREA USING INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS . J. M. Lim(1), J. H. Lee(1), K. H. Kim(2), Y. S. Chung(3), K. Y. Lee(4)

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To understand the metal distribution characteristics in a rapidly urbanized area, we collected and analyzed PM 10 samples by combining high-volume air sampling and INAA technique for the metal concentrations at the most polluted urban area of Daejeon city located in the southwestern region of Korea during 2000 to 2002. Using our measurement data for various metal species, we examined both the extent of metal pollution in the study area and the seasonality in their distribution characteristics. Results showed that each metal exhibited their occurrences in diverse concentration ranges over several orders of magnitude such as the mean values ranging from minimum value of 0.1 (In) to maximum value of 3017 ng m-3 (Cl). In addition, the extent of metal pollution in the study area was in general comparable with those typically observed from a strongly polluted urban area, if comparison was made with the results of previous studies. Examinations of their temporal distribution patterns indicated that most of elements of crustal origin tend to exhibit seasonal peaks during spring seasons, similarly to the observed pattern for PM 10. On the other hand, most of elements of anthropogenic origin tend to exhibit seasonal peaks during winter (or fall) seasons. Moreover to explain the factors regulating their mobilization properties, the data were processed by factor analysis. Results of factor analysis suggested important roles of both industrial and natural source processes, despite the fact that the study site is located at the downwind position of major industrial complex. Based on the overall results of our study, we conclude that the site may be strongly impacted by man-made sources but the general patterns of metal distributions in the study area inspected over seasonal scale are quite consistent with what are typically observed from natural environment.

M076 INAA OF LICHEN SAMPLES FOR BIOMONITORING THE ATMOSPHERIC POLLUTION AT SÃO PAULO CITY METROPLITAN AREA, BRAZIL. M. Saiki(1), A. Fuga(1), E. R. Alves(1), M.B.A. Vasconcellos(1) and M.P.Marcelli(2)

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In spite of the great number of publications dealing with the use of lichens as biomonitors of atmospheri pollution, data concerning their use in monitoring studies are very scarce in Brazil. In this study, in sit lichen samples were analyzed in order to obtain maps showing trace element distribution and to mak comparison between the results obtained for lichens collected in sites of different levels of pollution.
The Canoparmelia texana species were collected from bark trees of the following sampling sites: Sã Caetano do Sul, Santo André, Mauá, São Miguel Paulista, Parque Ibirapuera, Santana, Cerqueira Césa and Pinheiros, located in the metropolitan area of São Paulo city and also in areas considered a non-polluted. Lichen samples were cleaned using adequate protocols and analyzed using comparativ method of instrumental neutron activation analysis (INAA). The analysis of variance test applied to th results indicated that lichens from clean sites present lower concentrations of the elements As, Ba, Ca Co, Cr, Cs, Fe, La, Na, Sb, Se, U and Zn when compared with those from polluted sites of São Paulo cit (p 0.05). Significantly higher concentrations of As, Ba, Cd and Mn were obtained in lichens from Sant André and Santana than those obtained in other sites. The high concentrations of these elements may b derived from several industries located very close to these sites. On the other hand concentrations of C K, Na, Se and Zn were similar for all the samples collected in São Paulo city.
The obtained results indicated that the use of C. texana species for environmental passive biomonitorin is possible and the INAA method applied was very appropriate to analyze this kind of material due to it multielemental character, accuracy, precision and easiness of experimental procedure.
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