

ABSTRACT
**PASSIVE AIR SAMPLING OF POLYCYCLIC AROMATIC HYDROCARBONS,
ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS:
PILOT STUDY OF POPS IN THE PHILIPPINE ATMOSPHERE**

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The feasibility of using passive air sampler (PAS) in the determination of the concentration of persistent organic pollutants (POPs) in inhalable ambient air as a pioneering study in the Philippines was investigated. A depuration technique, supported by an uptake rate study, provided the determination of the sampling rate and eventually, the volume of air sampled. The sampling rate obtained were 2.94 and 4.60 m³/day, for phenanthrene d-10 and PCB 28L, respectively. These sampling rates were utilized to determine the concentration of POPs in the Philippine atmosphere. The uptake rate study showed linear uptake profile for majority of low molecular weight (LMW) PAHs, and some high molecular weight (HMW) PAHs and OCPs. Uptake profile for PCBs indicated near detection levels, as results of analytical variabilities. The concentrations of polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), and polychlorinated biphenyls (PCBs) in six residential areas were obtained in four sampling periods starting from the end of one dry season, most of the following wet season, and until the beginning of the next dry season. Passive air sampling with polyurethane foam (PUF) disk and short integration time of 42–56 days was found to be applicable for the determination of LMW PAHs and some volatile HMW PAHs, OCPs and PCBs. The measured air concentrations of LMW PAHs in this study demonstrated the applicability of PAS in determining the spatial and temporal trends. The levels of OCPs, on the other hand, revealed that pesticides are brought by historical applications or fresh introduction into the environment. The ratio of *trans*-chlordane to *cis*-chlordane suggests that chlordanes are still being used as ingredient in household pesticides. The quantities of PCBs were found to be comparable with the concentrations studied by international researchers, and give evidence to long range atmospheric transport of POPs, although outliers arise from point sources. Data from this pioneering study can be used for the assessment of POPs in the Philippine atmosphere and the implementation of the Stockholm convention in the Philippines.