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EFFECT OF BENZENE ON FORMALDEHYDE REMOVAL BY SHOOTS OF THREE INDOOR PLANT SPECIES

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Abstract

Much attention is paid to removing formaldehyde from indoor air to decrease the health risk for urban inhabitants since formaldehyde is a main indoor pollutant causing various symptoms. In this study, formaldehyde removal by the shoots of potted *Chlorophytum comosum* (spider plant), *Epipremnum aureum* (golden pothos) and *Aloe vera* (aloe) was investigated with a dynamic chamber technique. The results indicated that the order of formaldehyde removal capacities for the plant shoots was *C. comosum* > *E. aureum* > *A. vera* at the same inlet formaldehyde concentration. Formaldehyde dehydrogenase (FDH) activities in the leaves of *C. comosum*, *E. aureum* and *A. vera* also followed the consistent order of formaldehyde removal capacities for the shoots whether or not the three plant species were fumigated in formaldehyde, which demonstrated that formaldehyde removal in plant shoots is mainly due to enzymatic metabolism of formaldehyde by FDH. The study on the three plant species fumigated in the combination of formaldehyde and benzene showed that formaldehyde removal capacities for the plant shoots could be stimulated by the coexistence of gaseous benzene in the polluted air since the related enzyme systems induced by benzene might simultaneously take part in formaldehyde conversion.

Key words: benzene, formaldehyde, formaldehyde dehydrogenase, plant

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