

Effect of Some Selected Plant Species in Ameliorating Indoor CO₂ Concentration

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In view of increasing migration from rural to urban areas and inadequacy of suitable accommodation in towns, many people and students in urban areas live in highly congested, ill-ventilated and abodes. Such conditions have resulted in deterioration of indoor air quality, including increased concentration of CO₂ which have posed issues such as Sick Building Syndrome (SBS), reduced productivity and undue fatigue. Therefore, studies were carried out to evaluate the effectiveness of some selected CAM plant species, namely *Zamioculcas zamiifolia*, *Sansevieria trifasciata* and *Kalanchoe spp.*, in improving indoor air quality. Plants of comparable age and size of the said species were selected and placed in air-tight containers (4500 cm³) one each in 3 replicates. CO₂ gas (0.1 ml) of 1000 ± 250 ppm was injected into each container and gas samples were collected at the beginning of the experiment (7.00 hours) and at four hourly intervals 11.00, 15.00 and 17.00 hours and were analyzed for CO₂ concentration by gas chromatography using a capillary column. Inter-specific variation in CO₂ absorption was evident which was highest in *Kalanchoe spp.* (176.76 ppm.g.hr⁻¹) followed by *Zamioculcas zamiifolia* (94.94 ppm.g⁻¹.hr⁻¹) and *Sansevieria trifasciata* (43.16 ppm.g⁻¹.hr⁻¹). Preliminary studies showed a considerable interspecific variation in reducing CO₂ concentration in indoor spaces. Therefore, there are prospects for improving indoor air quality of particularly congested and ill-ventilated abodes using plants effective in absorbing elevated CO₂ concentration.

Keywords: Carbon dioxide, Indoor air quality, Inter-specific variation, *Kalanchoe spp.*, *Sansevieria trifasciata*, *Zamioculcas zamiifolia*,