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(57) Abstract :
The present invention relates to a Moss Cage Air Purification System for air conditioners, utilizing a biofiltration mechanism to enhance indoor air quality. The system comprises a modular moss cage structure made from biodegradable materials, integrated with a capillary fabric mat for hydration. Selected moss species, including Cushion moss (Leucobryum sp.) and Sheet moss (Hypnum sp.), efficiently absorb PM2.5, PM10, VOCs, and CO2, while regulating humidity. A germination spray mechanism enriched with growth stimulants and microbial inoculants promotes moss longevity and air detoxification. The system offers low-maintenance, sustainable air purification with minimal airflow resistance, reducing reliance on synthetic filters and lowering environmental impact. Adaptable for residential and commercial HVAC systems, this innovation enhances energy efficiency, eco-friendliness, and natural air filtration.

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