

## ***Development of Low-Cost Automatic Rainwater Sample Collector for Assessing Air Pollution***

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Air pollution is a considerable issue in urban atmosphere as heavy traffic congestion, emits toxic pollutants that are harmful to human health and ecosystems. Clean air is an essential prerequisite for sustaining life on Earth. But presence of toxic contaminants in air has characterized air pollution by affecting human health. The scavenging of air pollutants affects the removal of air pollutants in the atmosphere. For evaluating scavenging of air pollutants, ambient rainwater sample collection was challenging as available instruments were highly expensive. Therefore, a sensor based automatic sample collector was developed specifically for the collection of ambient rainwater in first 10 min period of a rain. The sample collector has advantages to minimizing cost as the sensor-based system facilitates simple mechanism and low space requirement. It also facilitates the collection of rainwater sample on a required time and avoid collecting extra water until sample collector is reached from a distance. Further, the sensor based system can control lid opening angle and detect signals according to the intensity of rain. Although, handling of the machine is simple, battery replacement in correct time should be considered. Different dry periods are considered when collecting the samples and the accuracy of the machine was checked by using parallel samples which are manually collected. Therefore, samples which collect using auto sampler are useful in analyzing scavenging efficiency of air pollutants in different dry periods.

**Keywords:** Atmospheric Pollution, Wet Scavenging, Build-Up Air, Ambient Rainwater, Traffic Related Emission