ABSTRACT

The main aim of this study was to determine effective methods for indoor spaces that enhance environmental safety and human health. Far and wide, ozone is contemplating the most applicable and convenient method used to sterilize the indoor environment and control odor, especially in the hospital that needs appropriate disinfection method. The experiments of this study were conducted in various selected places such as hotel, hostel, office, residential room, residential kitchen and hospital by using ozone generator. The different experiments which were conducted in these places were air disinfection, odor control and sterilization, by performing a series of experimental steps, the effectiveness of ozone was increased. In the air disinfection experiment, the ozone showed 96 %, 98 %, 97 %, 98 %, 96 % and 94 % efficiency for the hotel room, hostel room, office room, residential room, residential kitchen and hospital ward respectively whereas, the time interval was varied in each case. In the experiment on odor control, the inspection was conducted that demonstrated 5 out of 6 members proved that these places were free from odor whereas, in the case of the hospital ward only 4 out of 6 members manifested that odor was removed. In the sterilization experiment, objects such as a table, chair, handle lock, and desk for the kitchen (stove and shelf) were chosen from these places representing 98 % competent results by using ozone. The sterilization efficiency of ozone was also tested by washing bed sheets and utensils with ozone and then compared with the traditional method. This indicates that the cleaning and bacteria removal efficiency of ozone was 9 times higher than the regular method. The ozone laundry saves almost Rs. 12,000 on detergent costs and 60,000 liters of water per year, it also conserves electrical energy. A total operational cost of Rs. 1,500 is needed by the ozone generator per year therefore, it is a cost-effective method. The ozone also revealed a 95 % impressive result in the repellency of mosquitoes present in indoor places. Hence, ozone is considered an effective method because it disinfects the air, removes odor, sterilizes objects and repellents mosquitoes. It conserves water, and saves the cost and electrical energy. Moreover, it also saves the cost used for the treatment of industrial wastewater, because the ozone-based wastewater maintains the physiochemical parameters of water.