AOGS 2006

Analysis of the Hygienics Safety for a Sustainable Sanitation System in Miyako Island

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The Sustainable Sanitation System developed by this research is a new wastewater treatment system. It includes a non-flushing toilet composting feces, urine, and garbage wastes and a gray water treatment system based on a biological and ecological concept. The objective of the system is to protect human health and the environment while reducing the use of water and recycling nutrients. One of the pilot projects was launched in Miyako island in Japan. A Bio-toilet in which excreta is decomposed into compost has been used to treat the black water and the constructed wetland has been used to treat the gray water in this system. However, the risk of exposure to pathogens should be considered, because excrement remains in the Bio-toilet for long periods of time. Besides the geology of the island is constituted by the limestone with high percolation rate and the surface water penetrates even to groundwater. Therefore, in this research, the hygienic safety of this system was analyzed using the microbial risk assessment.