

**STUDY ON SOLAR INACTIVATION OF FAECAL
COLIFORMS IN CONTAMINATED WATER, AS A LOW
COST METHOD OF MICROBIAL DISSINFECTION**

By

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Abstract

According to WHO sources, one third of the population of developing countries has no access to safe drinking water. Disinfection is essential to destroy the waterborne pathogens, but cost of disinfection is a considerable factor. In conventional water treatment, oxidants are used for removal of bacteria. Household methods for disinfection of drinking water includes, boiling or heating with fuel, and filtration.

Researchers in many countries have studied about improving the quality of drinking water by solar disinfection. World Health Organization has recommended solar disinfection method (SODIS) for improving of water quality. Local NGOs in most developing countries, are promoting this method under the coordination of AWAG (Swiss Federal Institute for Aquatic Science & Research) / SANDEC (Dept. of Water & sanitation) since 1999.

Sri Lanka receives about 2500 hrs per year of sunlight, and seasonal variations are very minimal. Also, the solar intensity is almost uniform throughout the year. Although this method is currently being used in some rural areas in Sri Lanka, no published data is available.

Therefore the research was designed with the objective of studying the feasibility of improving quality of drinking water at low cost, using solar energy. The specific objectives has been, studying the effect of solar radiation on disinfection of water, the effect of water temperature due to solar radiation on disinfection process, and study the effect of water turbidity, on the rate of disinfection. Studying on re-growth of inactivated faecal coliforms, in water, treated by solar radiation, had been another specific objective.