FLORIDA A&M UNIVERSITY

Tallahassee, Florida

Cooperative Extension Program

Fact Sheet: WQ-1

June 2005

REF: Water Quality

Disinfecting Drinking Water Using Ultraviolet Light: *An Alternative to Chlorination*

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Did you know?

Ultraviolet light can be used as a disinfectant for drinking water.

What is ultraviolet light disinfection?

•Use of light of a certain wavelength to destroy the ability of bacteria, viruses, and other pathogens to multiply and cause disease.

•Ultraviolet light (UV) is classified into three wavelengths:

• UV-C (100 to 280 nm),

•UV-B (280 to 315 nm), and

• UV-A (315 to 400 nm).

HOW?

•UV-C is germicidal (kills germs). UV-C deactivates the DNA (deoxyribonucleic acid) of the bacteria, viruses, and other pathogens, and destroy their ability to multiply and cause disease.

Why disinfect drinking water?

1. Some water may contain waterborne pathogens that may cause illness to humans and animals
2. Disinfection of water will render it safe from these pathogens.

References:
Mbuya, O. S., B. J. Mankazana, L. A. Latinwo, and C. S. Gardner. 2005. Disinfecting drinking water using ultraviolet light: An alternative to chlorination. European Journal of Scientific Research, 1(1), 27-44.

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Are there other methods of disinfecting drinking water?

YES.

1. Chlorination
2. Boiling
3. Filtration

A well proven method is chlorination (using chlorine to disinfect).

Facts about chlorine:

- Chlorine is not effective on killing some waterborne pathogens, e.g. spores
- Chlorine forms compounds that cause damage to the environment (e.g. chloroflurocarbons- CFCs)
- Chlorine in drinking water have some potential health risk

Benefits of ultraviolet water disinfection

1. No unpleasant taste or smell (odor)
2. Safe, that is, no known health risk to human
3. Relatively low cost
4. Effective on killing most waterborne pathogen
5. Environmentally friendly
6. Potential alternative to chlorination

How might consumers benefited from this technology?

•An affordable model could be made available to consumers for disinfecting drinking water.

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