
Summary of ViroBac™ Testing & Research



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W0-01 University of Illinois at Chicago

TEST: ViroBac™ was examined for its ability to effectively decrease the amount of viable Escherichia coli in artificially contaminated water.

RESULTS: When the contaminated water was passed through Water One purifiers with ViroBac™ at flow rates of 75 ml/min and 200 ml/min the viable colony forming Escherichia coli present in the influent water was effectively eliminated from the effluent water.

W0-02 Loyola University of Chicago, Foster G McGaw Hospital

TEST: Unused Water One purifiers with ViroBac™ that had been manufactured four years ahead of the testing date were examined for their ability to effectively decrease the amount of Escherichia coli, ATCC #25922 in artificially contaminated water.

RESULTS: In all tests, the reduction of the bacteria in the effluent water was significant at greater than 99.99%.

W0-03 Loyola University of Chicago, Foster G McGaw Hospital

TEST: Testing was developed to determine the virucidal capacity of ViroBac™. **The viruses used in the evaluation were; Coxsackievirus type B-2, Echovirus type 6, and Poliovirus type 2.**

RESULTS: The results of three experiments performed with each of the three viruses showed the Water One purifier with ViroBac™ was repeatedly effective in reducing the infectious virus titer greater than 99.9% in all three viruses.

W0-04 Loyola University of Chicago, Foster G McGaw Hospital

TEST: The experiments were designed to determine the bactericidal capacity of the ViroBac™.

In these experiments, 10 liters of water infected with E.coli was drawn through 2 separate Water One purifiers with ViroBac™ on alternate days to test the reuseability of the purifiers.

RESULTS: The results showed a reduction in the bacterial counts in all tests was significant, at greater than 99.99%.

W0-05 University of Health Sciences, Kansas City, MO

TEST: The tests were designed to measure the effectiveness of the Water One purifier with ViroBac™ in the removal of cysts of **Giardia muris** from water.

RESULTS: In a total of 12 experiments, a 6 log reduction (99.9999% clearance) of Giardia cysts was observed in all but two aliquots, and none of the experiments resulted in log reduction less than 4 (99.99% clearance).

W0-06 Brigham Young University, Department of Zoology

TEST: The test was designed to determine the ability of the Water One purifier with ViroBac™ to remove and/or kill cysts and trophozoites of Giardia lamblia. This organism is the main cause of diarrhea in individuals who drink water in mountainous streams.

RESULTS: The Water One purifier with ViroBac™ was found to be highly efficacious (>99%) against this particular disease agent.

W0-07 Hazelton Raltech, Inc. (Hazelton Laboratories America, Inc.)

TEST: The research was designed to test the efficacy of ViroBac™ in removing pathogenic bacteria from deionized water and river water using the cultures E. coli #11229 and Vibrio cholerae in repeat and continuous conditions.

RESULTS: The testing demonstrated that the Water One purifier with ViroBac™ will filter sterilize water infected with up to 100,000 bacteria/ml over a period of 20 successive 120 ml passages. The results also demonstrated that the Water One purifier with ViroBac™ will filter sterilize a continuous flow of up to 2 gallons of water infected with up to 100,000 bacteria/ml.

W0-08 Department of Air Force (USA), Fairchild AFB

FIELD TESTS (Cold Lake, Canada & Camp Dawson, West Virginia): The test was designed to acquire pertinent information to conclude the value of the Water One Pure Sip™ purifier with ViroBac™ for inclusion in survival kits.

RESULTS: Overall conclusions:

- Pure Sip™ with ViroBac™ can effectively aid a survivor/evader in all environments where there are standing/running fresh water sources.
- Provides the user with a portable water purifier capable of treating bacteriological contaminated water.
- Pure Sip™ with ViroBac™ can be highly advantageous to an evader. It allows secure procurement of water without risking the evader's detection by the enemy.
- Pure Sip™ is lightweight and easily concealed.
- The construction of purifier allows for safe use.

W0-09 Department of Air Force (USA), Fairchild AFB

TEST: The research was designed to determine:

- The effectiveness of the Water One purifier with ViroBac™ when challenged with of a large concentration of bacteria in the test water (Enterobacter cloacae)
- The ability of non-viable cells to pass through the device

RESULTS: Summarized Findings:

- No viable bacteria were detected in the effluent water after passing through ViroBac™
- Microscopic examinations did not indicate the presence of bacterial cells in the effluent water
- PH did not change appreciably
- Testing data indicates the use of the Water One purifier with ViroBac™ results in sterile water and that ViroBac produces a safe and potable product.
- In the studies a total of 38.5 X 10⁹ viable bacteria (colony forming units) was exposed to the Water One purification device with ViroBac™ and none appeared in the effluent, presumably rendered non-viable. No significant clogging was observed.
- ***It was concluded that the Water One purifier with ViroBac™ should be recommended for inclusion in survival kits and that the device is highly effective and fulfills its design function in all respects.***

W0-10 Controls For Environmental Pollution, Inc., Santa Fe, New Mexico

TEST: The study was designed to test the effectiveness of ViroBac for reducing radioactivity in water. Based upon reports from the Chernobyl nuclear accident, it was decided to use Cesium-137 and Iodine-131 as the contaminants.

RESULTS: The testing indicated that the Water One purifiers with ViroBac™ do effectively reduce the levels of radioactivity in water. Iodine-131 was reduced to non-detectable levels while Cesium-137, despite the initial high concentration, was reduced with a mean efficiency of 82% bringing the reduction of activity within the limits prescribed by the National Interim Primary Drinking Water Standards.

W0-11 Applied Chemistry Division, Defense Laboratory, Jodhpur, India

TEST: The study was designed to test the effectiveness of Water One purifiers with ViroBac™ to remove E. coli bacteria in water known for high concentrations of E. coli (105 MPN/100 ml).

RESULTS: The Water One purifier with ViroBac™ was effective in killing the E. coli used as a contaminant with resulting effluent water found free of the presence of the bacteria.

W0-12 Consulting Chemists of Florida, Inc.

TEST: Water One purifiers were tested to establish the comparative purity of lake water and wastewater effluent after passing through the purifiers with ViroBac™.

RESULTS: Water from each type of water source was vacuum drawn through the purifiers with ViroBac™ and collected using sterile conditions.

Before passing through the purifier (E coli count per 100 ml)

Wastewater Effluent: 3010

Lake Water: 220

After passing through the purifier the E. coli count per 100 ml

Wastewater Effluent: <1

Lake Water: <1

W0-13 Analytical Services (WA) PTY LTD. Western Australia

TEST: A Water One purifier with ViroBac™ was tested for effectiveness in removing E. coli bacteria from the contaminated source water of the Canning River using the Most Probable Number (MPN) method in accordance with the International Standards for Drinking Water as published by the World Health Organization.

RESULTS: The raw/untreated Canning River water had an E. coli concentration (per 100 ml) of 161. After being passed through the purifier with ViroBac the E. coli concentration (per 100 ml) was less than 1. The accepted standard or E. coli in drinking water is a maximum of 2 per 100 ml. **The results show that highly contaminated, non-potable water was converted into microbiologically safe, potable water by the purifier with ViroBac.**



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