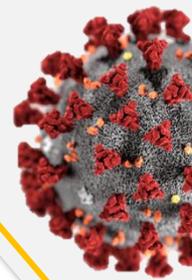




OmbacPlus ULTRON Electro-Activated Ionic Water as Disinfectant for COVID-19



INTRODUCTION

OmbacPlus ULTRON Electro-Activated Ionic Water is a pure dilute saline with an active ingredient hypochlorous acid (HOCl) or hypochlorite. It reacts with structural proteins of microbial cellular membranes and destroys the important components in germs to rupture them. This type of solution (hypochlorous acid) has been approved by the United States Environmental Protection Agency (EPA) for cleaning and as disinfectant, however, OmbacPlus itself is not registered with the agency. This rapid literature review was conducted to determine the efficacy of OmbacPlus ULTRON Electro-Activated Ionic Water as disinfectant for COVID-19 or coronavirus infection on clothing or directly on humans, rather than on the surface of healthcare facilities.

EVIDENCE ON EFFECTIVENESS AND SAFETY

No retrievable evidence on the use of hypochlorous-based disinfectant on clothing, PPE or humans. In line with the Ministry of Health Guidelines on COVID-19 Management No.5/2020 update on 24 March 2020, hypochlorous-based disinfectant such as sodium hypochlorite 1000 ppm is used for cleaning and disinfecting the surface of facilities and equipment.

Hypochlorites, the most widely used of the chlorine disinfectants, are available as liquid (e.g., sodium hypochlorite) or solid (e.g., calcium hypochlorite). The most prevalent chlorine products in the United States are aqueous solutions of 5.25%–6.15% sodium hypochlorite, usually called **household bleach**. They have a broad spectrum of antimicrobial activity, do not leave toxic residues, are unaffected by water hardness, are inexpensive and fast acting, remove dried or fixed organisms and biofilms from surfaces, and have a low incidence of serious toxicity. Sodium hypochlorite at the concentration used in household bleach (5.25-6.15%) can produce ocular irritation or oropharyngeal, esophageal, and gastric burns. Other disadvantages of hypochlorites include corrosiveness to metals in high concentrations (>500 ppm), inactivation by organic matter, discoloring or “bleaching” of fabrics, release of toxic chlorine gas when mixed with ammonia or acid (e.g., household cleaning agents), and relative stability. The microbicidal activity of chlorine is attributed largely to undissociated hypochlorous acid (HOCl). The dissociation of HOCl to the less microbicidal form (hypochlorite ion OCl^-) depends on pH.¹

A study by Ramalingam S et al., (2018) demonstrated that epithelial, fibroblast and hepatic cells have enhanced antiviral activity in the presence of increasing concentrations of sodium chloride (NaCl). Phagocytes destroy ingested microbes by producing hypochlorous acid (HOCl) from chloride ions (Cl^-) and hydrogen peroxide within phagolysosomes, using the enzyme myeloperoxidase. HOCl, the active ingredient in bleach, has antibacterial/antiviral properties. As myeloperoxidase is needed for HOCl production, non-myeloid cells are considered incapable of

producing HOCl. A significant increase in intracellular HOCl production is seen early in infection. These data suggest that non-myeloid cells possess an innate antiviral mechanism dependent on the availability of Cl⁻ to produce HOCl. Antiviral activity against a broad range of viral infections can be augmented by increasing availability of NaCl.²

CONCLUSION

1. No retrievable evidence on the use of hypochlorous-based disinfectant on clothing, PPE or humans. Hypochlorous-based disinfectants such as sodium hypochlorite 1000 ppm are used for cleaning and disinfecting the surface of facilities and equipment.
2. Sodium hypochlorite has been used in household bleach and it can produce ocular irritation or oropharyngeal, esophageal, and gastric burns. Other disadvantages of hypochlorites include corrosiveness to metals in high concentrations (>500 ppm), inactivation by organic matter, discoloring or “bleaching” of fabrics and release of toxic chlorine gas when mixed with ammonia or acid.

REFERENCE

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2. Ramalingam S, Cai B, Wong J, et al. Antiviral innate immune response in non-myeloid cells is augmented by chloride ions via an increase in intracellular hypochlorous acid levels. *Sci Rep.* 2018;8(1):13630. Published 2018 Sep 11

Based on available evidence up to 2 April 2020

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Disclaimer: This rapid assessment was prepared to provide urgent evidence-based input during COVID-19 pandemic. The report is prepared based on information available at the time of research and a limited literature. It is not a definitive statement on the safety, effectiveness or cost effectiveness of the health technology covered. Additionally, other relevant scientific findings may have been reported since completion of this report.

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