

Disinfection in Atlantic salmon RAS – current knowledge that requires a revisit

Current disinfection strategies require a revisit and standardization to ensure effectiveness. Alternatively: While disinfection is essential in RAS operations, little is known about the consistency of disinfection practices within and between Norwegian and North American RAS industries, nor about the efficacy of specific disinfection practices. We sought to document baseline information on the range of approaches in both Norway and North America in order to inform future research on best management practices for RAS disinfection.

DURATION: 2019-2023

SALINITY TESTED: Fresh water and brackish water

HIGHLIGHTS AND RECOMMENDATIONS:

- Majority of the approved disinfectants in the market have not been fully tested against aquaculture-relevant pathogens and in a setting close to normal production.
- Baseline research is still required for disinfectant efficacy over a range of concentrations, contact durations, environmental conditions, materials to be disinfected, and target pathogens.
- Current disinfectants approved for aquaculture use are only allowed when fish are not in the system. In order to apply some of these as RAS loop water disinfectant, effects on the fish and the system must be thoroughly documented.
- When choosing for a disinfectant three key criteria must be considered: 1) efficacy against pathogens; 2) user safety; 3) environmental impact.
- Modern salmon RAS farms acknowledge that even though in theory RAS has a more stringent biosecurity than ambient systems, there are still possibilities for disease outbreaks; therefore, a well-established biosecurity and disinfection protocol must be in place in every farm.
- These disinfection protocols must be appraised continuously and should be experimentally verified.
- Disinfection of biofilter after each production is not recommended; however, a RAS farm must have an established protocol on how to disinfect biofilters following a disease outbreak.

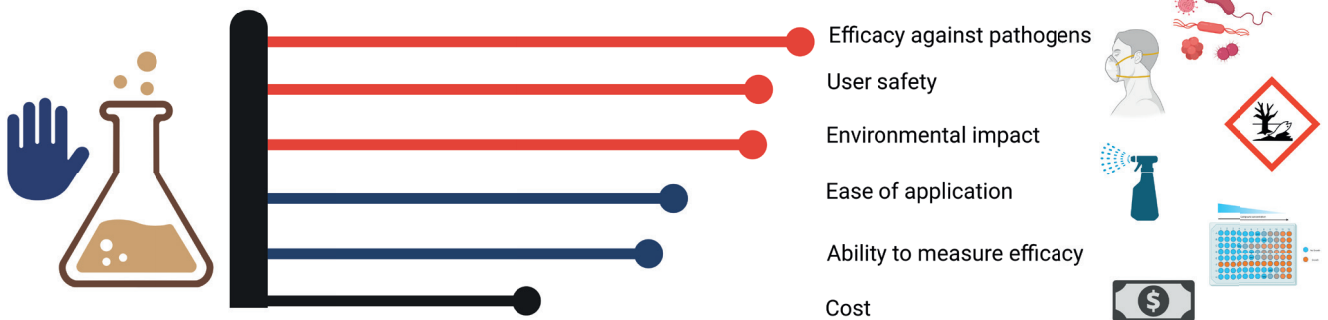


READ MORE:

Lazado C.C., Good, C. 2021. Survey findings of disinfection strategies at selected Norwegian and North American land-based RAS facilities: A comparative insight. *Aquaculture*. 532, 736038.

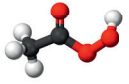



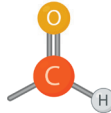

Good, C., Lazado, C. 2020. Survey results: RAS disinfection strategies. *RASTech Magazine*, December 2020. Available online at: <https://www.rastechmagazine.com/survey-results-ras-disinfection-strategies/>

Criteria in the selection of disinfectants



List of Norwegian Food Safety Authority-approved disinfectants for aquaculture use in Norway

(as of March 2023)

					
Peracetic acid	Chlorine	Hydrogen peroxide	Ozone	Glutaraldehyde	Pentapotassium
ADDI Aqua Aqua Des Hydi-Des InciMaxx Net InciMaxx Net Foam Kick-Start Oxonia Active Perfectoxid VigorOx A&F 5% VigorOx A&F 15%	Ecas4-Anolyte HL. Skjong ACA Aqua LifeClean LifeClean Disinfectant Concentrate	Freebac 35 Freebac clearoxyl 35 Oxyl-Pro Clean Oxyl-Pro Marine	AquaZone Nauzone NORMEX Desinfector Redoxzon	Aqua Omnicide Grotanol 3025 Virocid ViroSept	Virkon Aquatic Virex Aqua