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Longevity of Cryptosporidium oocysts in fresh and sea water at environmental temperatures

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Cryptosporidium has been associated with waterborne outbreaks in many countries. The capacity of this microorganism to produce occysts extremely resistant to environmental factors and conventional drinking water disinfection has facilitated its ability to spread and cause illness. Worldwide, *Cryptosporidium* oocysts have been found in groundwater, lakes, rivers, estuaries and ocean water. The survival of oocysts in freshwater (collected from the Laguna Setubal, Santa Fe, Argentina) and artificial seawater (salinity: 35 ppt) was investigated in the laboratory. Oocysts of *Cryptosporidium* spp., obtained from calves were cleaned of fecal debris using the sucrose flotation method. Suspensions of oocysts (10⁶ oocysts per mL of distilled water) were inoculated in tubes with (I) freshwater at 6, 15, 20 and 32 °C and (II) saltwater at 15 and 20 °C in the dark. Then 3 tubes were removed from water at 4, 8, 12 and 16 weeks later. Oocyst survival decreased with increasing temperature (p=0.003). Although there was a significant increase in the percentage of dead oocysts (p<0.001), a large proportion survived in the test waters for 16 weeks (30.7%±4.1% in freshwater at 32 °C and 28.6±9.79% in seawater at 20 °C). However, no difference was found between the viability of oocysts in fresh and sea water at the same temperature. Oocysts demonstrated longevity in all water types investigated. Temperature appears to be the main factor affecting the viability of oocysts in fresh and marine environmental waters.

Biography

Laura Modini is currently pursuing her PhD at the Universidad Nacional del Litoral, Santa Fe, Argentina. She is the Director of Water Section Laboratory at Faculty of Biochemistry and Biological Sciences at the same university. She has published papers in refereed journal and she is a Professor and Researcher at the Universidad Nacional del Litoral.

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