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Electrocoagulation as a promising defluoridation technology from water: A review of state of the art of removal mechanisms and performance trends(Review)

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Abstract [View references \(105\)](#)

Fluoride ions present in drinking water are beneficial to human health when at proper concentration levels (0.5-1.5 mg L⁻¹), but an excess intake of fluoride (>1.5 mg L⁻¹) may pose several health problems. In this context, reducing high fluoride concentrations in water is a major worldwide challenge. The World Health Organization has recommended setting a permissible limit of 1.5 mg L⁻¹. The application of electrocoagulation (EC) processes has received widespread and increasing attention as a promising treatment technology and a competitive treatment for fluoride control. EC technology has been favourably applied due to its economic effectiveness, environmental versatility, amenability of automation, and low sludge production. This review provides more detailed information on fluoride removal from water by the EC process, including operating parameters, removal mechanisms, energy consumption, and operating costs. Additionally, it also focuses attention on future trends related to improve defluoridation efficiency. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.