

Evaluation of Fluoride Concentration in Drinking Water of Some Cities within Anbar Province, Iraq

Arkan Dhari Jalal* , Rafid Alboresha, Majeed Mattar Ramal

Abstract

A fluoride atom (F) has a negatively-charged ion called a fluoride ion. The element fluoride can also be found in a compound called fluoride. Many countries with high rates of dental fluorosis naturally contain high levels of fluoride in their minerals and water supplies. The fluoride ion concentrations were determined by collecting drinking water samples twice a month from (July/2020 - to June/2021) from 4 main cities in Anbar Province in Iraq, during the rainy and dry seasons. The fluoride concentrations were then analyzed and compared with standard guides of the United States Environmental Protection Agency (USEPA) and the World Health Organization (WHO). The objective of this study is to evaluate the fluoride concentrations in Ramadi, Fallujah, Khalidiyah, and Heet cities. The results showed small variations ranging from (0.041 mg/l) to (0.051 mg/l) when these results are compared with Environmental Protection Agency (EPA) and World Health Organization (WHO) standard limitations. the recommended standard limitations of (EPA) and (WHO) for fluoride concentration range from (0.4 - to 1.5) mg/l, therefore the drinking water of these cities is comfortable to drink, but it may cause some problems, such as dental caries, dental fluorosis, colorless teeth yellowish, and blackish teeth. The results are also less than the typical concentration limitations, which, is (0.7 mg/l). To avoid the danger of poisoning, adding fluoride to water is not recommended unless it has been recommended by a professional in the food system or a dentist. However, humans can also get fluoride from sources other than water, and the quantity of fluoride they consume is different from one person to another.