عنوان مقاله:

Organoleptic and palatability properties of drinking water sources and its health implications in Ethiopia: a retrospectivestudy during 2010-2016

محل انتشار:

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خلاصه مقاله:

Background: This retrospective study aimed to investigate the physicochemical properties of drinkingwater sources in Ethiopia and compare the water quality with the health-based target. For this purpose,the water quality database of Ethiopian Public Health Institute (EPHI) from 2010 to 2016 was used.Methods: The concentration and other properties of the water samples were analyzed according tothe Standard Methods of Water and Wastewater analysis. Quality control and quality assurance wereapplied in all stages following our laboratory standard operation procedures (SOPs).Results: The concentration of the selected parameters varied based on the type of water sources. Themean concentration of turbidity was higher in spring water (21.3 NTU) compared to tap (12.6 NTU)and well (3.9 NTU) water sources. The mean concentration of total dissolved solids (TDS), electricalconductivity (EC), sodium (Na+), and sulfate (SO4-2) was found to be higher in spring water sourcesthan tap and well water sources. Comparably, the concentration of hardness, calcium, and magnesiumwas found to be higher in well water sources than spring and tap water sources. The bivariate analysisindicated that out of 845 analyzed water samples, more than 50% of the samples from Oromia regionhad turbidity, pH, TDS, hardness, Ca++, K+, and Na+ within an acceptable limit. In addition, the logisticregression analysis showed that water quality parameters were strongly associated with the type of watersources and regional administration at $P < 0.05$.Conclusion: More than 80% of the samples analyzed from drinking water sources were in agreementwith WHO guidelines and national standards. However, the remaining 20% specifically, pH (25%),calcium (20%), hardness (18.1%), TDS (15.5%), and turbidity (13.3%) analyzed from improved watersources did not comply with these recommendations. Due to objectionable or unpleasant taste, peoplemay force to look for alternative unprotected water sources that lead to health concerns.

کلمات کلیدی:

Drinking water, Water quality, Water sources, Taste, Physicochemical properties, Retrospective study, Ethiopia, Logistic models