

A standard value for sodium and potassium in drinking water set by the Ethiopian standard is 200 mg/L and 1.5 mg/l [17] respectively. In well water the sodium concentration is higher than the piped and spring water samples.

From well water samples, the average concentration and number of sample (in %) greater than ES of sodium concentration were higher in Afar region. Whereas, the average concentration of potassium was higher in Somalia region. When we come to number of sample (in %) greater than ES the potassium content was higher in Afar region as compared to other regions. Average concentration of sodium and potassium were higher in Oromia region. The number of sample (in %) greater than ES was 0 for sodium in all regions, for potassium concentration were 100,81.9 and 77.7 in Amhara, Addis Ababa and Oromia regions respectively for piped water samples.

From spring water samples, average concentration of sodium and potassium in Amhara region was higher than Oromia, when we come to the number of samples (in %) greater than ES was reversed.

A very high sodium and potassium concentration in spring water sources are 40 mg/L and 9.9mg/l, in piped water sources, 89mg/l and 17mg/l from Oromia and well water sources, 1000 mg/L from Afar and 32 mg/l from Oromia respectively (Figures 3 and 4). In generally, all average concentration of sodium was found below 200mg/l in all regions and water type sources except Afar region in well water type source, whereas, all average concentration of potassium was found above 1.5 mg/l of drinking water standard of Ethiopia in all regions and water type sources.

The ratio of sodium to total cations is important in human pathology and agriculture. But, persons affect by certain diseases with low sodium concentration. The idea state of Florida Department of Environmental Protection (FDEP) has set the drinking water standard for sodium at 160 mg/L to control individuals that are simply attract to sodium sensitive hypertension or diseases that cause difficulty in regulating body fluid volume [18].

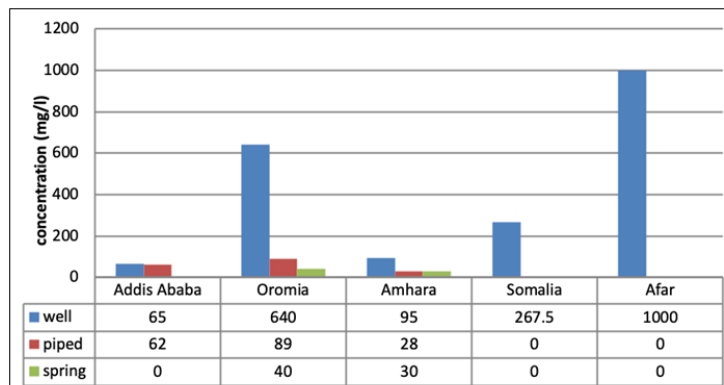


Figure 3. Maximum value of sodium.

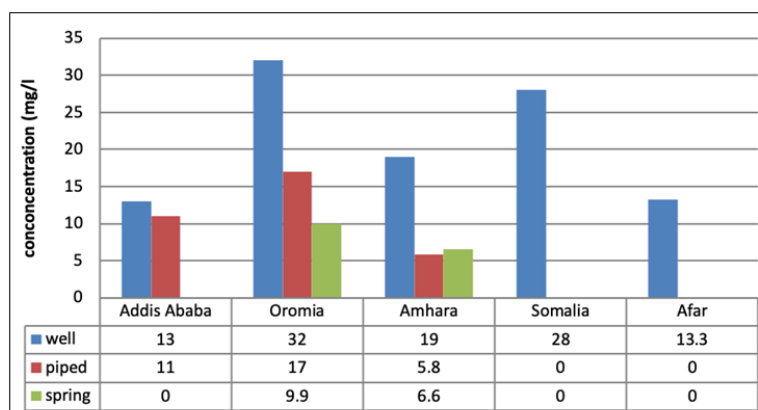


Figure 4. Maximum value of potassium.

The concentrations in excess of 200 mg/L may give rise to unacceptable taste [19,17], no health-based guideline value is proposed for sodium in drinking water. While, the reports

of this finding reducing salt intake lowers blood pressure and cardiovascular diseases [20]. Similarly, for all water

resources with extremely high in sodium concentration may rise cardiovascular diseases and increase the mortality rate.

Sodium is mostly found in natural waters, whereas, the potassium content of natural water is usually less than that of sodium. Concentrations of potassium more than 10mg/l were decided unusual except in water having dissolved solids concentration /hot spring. Potassium is not a major component in public /industrials water supplies [21].

CONCLUSION

In this retrospective study the sodium and potassium concentration in the water sample varied from 0.2 mg/L to 1000 mg/L and 0.0 mg/L to 32mg/L respectively. We can conclude that, all average concentration of sodium was found below 200mg/L (drinking water standard of Ethiopia) in Addis Ababa, Oromia, Amhara and Somalia for well, piped and spring water samples except Afar region in well water samples. Whereas, all average concentration of potassium was found above 1.5 mg/L of drinking water standard of Ethiopia in all regions and water samples type sources.

When we compare with standards, the drinking water analysis cause serious health problem because the results are not conforming to national standard this result in public health problem in long time exposure. Therefore, the Ethiopia water authority shall work focus on water quality assessment and controlling mechanism. component in public /industrials water supplies [21].

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