

## Physicochemical Quality of Drinking Water of Kermanshah Province

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Physicochemical quality of drinking water has a direct impact on consumer health and fluoride, nitrite, nitrate, total dissolved solids compounds and pH are their important parameters that have closely relationship with community health. In many cases, source nitrate of water is due to agriculture activities, landfill sites and also potassium nitrate that used in the manufacture of glass, nitrite in form of sodium nitrite used as a food preservative too. Also there are different levels of fluoride in natural waters and its high concentration is usually found in very vast geographic areas in the belt deposits, volcanic and granitic rocks. Adverse amount of these compounds in water can cause a variety of diseases including met-hemoglobinemia, skeletal and dental inelegance, Down syndrome and reduce IQ (Intelligence Quotient) [1].

For this reason, stringently national and international standards for maximum acceptable conditions for these compounds have been enacted. So it is necessary to measure these parameters and their compliance with existing standards and the water status in terms of utility and usable

Has to be considered and in the case of non-compliance, appropriate solutions for resolved them to be provided. Based on the physicochemical parameters (fluoride, nitrite, nitrate, total dissolved solids compounds and pH) of the water in Kermanshah Province that as for season, location of the sampling in several consecutive years has not been studied, so for this purpose during the three years consecutive in the spring (May and June), Autumn (September and October) and winter (March) the total of 115 samples from all sources, storage tanks and taking place in the cities of Kermanshah province were picked. To determine the favorable or unfavorable amount of fluoride, nitrate, nitrite, TDS and pH was compared with the standard that announced by the standards of Industrial Research Institute of Iran, so the level of fluoride (0.6-1.7 mg/l), nitrite (0.004 mg/l), nitrate (45 mg/l), TDS (500

mg/l and maximum allowed 1500 mg/l) and pH (7-8.5 and maximum allowed 6.5-9) as the favorable and the levels outside of this range was regarded as unfavorable. The measurement of mentioned parameters was performed according to standard methods for water and wastewater testing [2]. The results showed that the total average of physicochemical parameters of sources, storage tanks and taking place in three years consecutive of Kermanshah province is fluoride (0.32 mg/l), nitrite (0.0003 mg/l), nitrate (14.58 mg/l), TDS (311.33 mg/l) and pH (7.25) and all of the parameters except the fluoride are in the range of national standards. The results of this study has consistent with research conducted by Poureslamy and et al that in their research amount of fluorine in various cities of Kerman province was lower than the standard range [3]. Based on the findings of this study, we can conclude that supplies water of Kermanshah province in terms of physicochemical parameters (fluoride, nitrite, nitrate, TDS and pH) is in favorable situation and it is accordance with the national standard (No.1053 features drinking water). But in order to achieve the required minimum fluoride of water, it is suggested to be the fluorination of water sources of province.

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