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The evaluation and analysing the boron concentration rate in soil of north Basrah city (Iraq) by carmine method

Thaer M Salman¹, R K Fakher Alfahed², Hussain A.Badran ¹, Khalid I Ajeel ¹, Mustefa M Jafer¹ and Kareem K Mohammad²

¹Basrah University, Education College for pure sciences, Physics Department, Basrah, Iraq

²Al-Nahrain University, Al-Nahrain Nano- renewable Energy Research Center, Baghdad, Iraq.

Email: rrr80kkk@yahoo.com

Abstract . One of the primary goal of the current research is to estimate the concentration of Boron element $^{10}_5\text{B}$ in soil of North of Basrah in Iraq. The evaluation was achieved by analysing the soil samples obtained from 34 locations using carmine method. The estimation range of Boron concentration was between 0.259 ppm to 0.757 ppm corresponding to Al-Huwair, Al-Mhayit and Al-Huwar river EZZ in soil respectively .It can be noticed from the study that all the surface soil samples under the test have a boron ratio within the natural limits for drinking water supplies for the people.

Keywords: North of Basrah, Carminic acid , Boron concentration, Carmine method

1. Introduction:

Boron element is one of the trivalent atoms. It has a three valence electrons and has oxidation state of +3. It can be considered as a mixture of two stubble isotopes namely as ^{10}B 19.8% and ^{11}B 80.2% [1]. It can be founded in the nature in water, rocks as well as the soil. It has different concentration in the nature (10 ppm-100 ppm). In the landcrust and in boron-rich areas respectively [2]. The boron appears on the land in many different composite forms such as tourmaline, colemanite ,kernite, borates, ulexite, borax and boric acid [3-6]. Un-dissociated boric acid (H_3BO_3) has 7 at PH, however, it can be formed as a tetrahedral borate anion when it dissociated in water since accepted hydroxyl ions from water [7]. Boron is similar to carbon in its capability to form stable covalently bonded molecular net work .It exists in four major polymorphs; Γ , S ,X and T. Where as Γ ,S and T phases are based on B_{12} icosahedra, however X -phase can be characterized as a rock salt type arrangement of the icosahedra and B_2 atomic pairs. Also the boron can be grown in soil when it had a great amount of free carbonates, high PH and less organic matter [8]. Boric acid, borates and per borates have wide used in detergents, soap, cosmetics, mild antiseptics as well as in glass manufacture [9]. Those matters can cause boron toxicity in environment since they used in flame retardants and for nuclear installations as neutron absorbers. In agricultural can uses a borates as fertilizer, insecticide and herbicide [10-12]. However the boron can be formed as borosilicate in igneous, sedimentary

