E-4

Calculations:

A). Standardization of 0.1 N $BaCl_2$:

(N x V) of $BaCl_2$ solution = (N x V) of sodium sulphate

N of $BaCl_2$ solution = 0.02 N x 20 mL

Volume measured from Plot-1 (V_1) ; V_1 = 4.1 mL

= 0.097 N of $BaCl_2$ solution

B). Estimation of unknown sulphate:

(N x V) of irrigation water sample = (N x V) of $BaCl_2$ solution

N of irrigation water sample = N of $BaCl_2$ x Volume measured from Plot-2 (V_2) , V_2 = 4.5 mL

20 mL

= 0.022 N of irrigation water sample

Amount of sulphate present in 1L = Normality of irrigation water sample x Eq. wt. of SO_4^{2-} (48.03)

Amount of sulphate present in given sample solution = Strength of irrigation water sample x 48.03 x100

1000

= 0.104 grams in 100 mL

Result: Amount of sulphate in given irrigation water sample = 0.104 grams.

Evaluation of Result:

Sample number	Experimental value	Actual Value	Percentage of error	**Marks awarded**

2/05/09/01/2020