

# Determination of riboflavin by using uv- vis essay



**ASSIGN  
BUSTER**

1. To find the sum of vitamin B2 in kids multivitamin tablet. 2. To compare the value obtain of vitamin B2 with the published value for the tablet.

Introduction: Riboflavin besides known as vitamin B2 that has chemical expression of  $C_{17}H_{20}N_4O_6$  is the  $H_2O$  soluble vitamin that means the organic structure was non stored them and besides non bring forth them. The beginnings of the vitamin B2 can establish in works or animate beings tissues such as Prunus dulciss. organ meats. whole grains. green leafy veggies milk and etc. Vitamin B2 is really of import to the organic structure cause it is involved in the critical metabolic procedures in the human organic structure. and it is necessary for the organic structure growing. besides can move as antioxidant in order to forestall the free group that can lend to the malignant neoplastic disease. Besides it besides necessary for the energy production were it convert the saccharides to the glucose and besides convert the vitamin B6 and vitamin Bc in the signifier that can utilize by organic structure.

The deficiency of the vitamin B2 in the organic structure can do slowed growing. digestive job. and besides the puffiness and tenderness of the pharynx. While the surplus of the vitamin B2 can lend to the kidney rocks. allergic reaction and sensitive to the visible radiation. That why for the kids although for the grownups it has a restriction of riboflavin consumption in day-to-day dietary. Harmonizing to the Recommended Dietary Allowance ( RDA ) . the kids 0-6 months old merely demand to take 0. 4mg for the 17-12 months is 1. 0 mg. 1-3 old ages are 0. 5mg. 4-8 old ages is 0. 6mg and for 9-13 old ages need 0. 9mg. Nowadays. there is easy ways for the kids that non hold imbalance of vitamins in their dietary. because the multivitamins

can provides all the utile vitamins for them. Multivitamins is the dietetic addendum that contains three or more vitamin and mineral does non included herb. endocrines. and drug that signifier in the tablet. capsule. pulverization. liquids and besides injections.

There is a broad method in order to find the vitamin B2 and the one of sufficient method that can used is by utilizing UV-Vis. UV-Vis spectrometry is based on the selective soaking up of electromagnetic radiation in the 180-780nm wavelength scope. UV-Vis radiation has sufficient energy to do passage in adhering negatrons and therefore. is correlated best with the behaviour of bonds and functional groups in the analyte. Absorption in the UV-Vis scope is chiefly a survey of molecules and their electronic passages. Electron take parting straight in bond formation or to unshared. outer negatrons that are localized about negatively charged atoms that can be promote to a higher energy molecular orbital. UV-Vis spectra can be obtained from organic absorbing species such as passage component ions. rare earths and actinoids every bit good as inorganic composites or charge transportation composites. APPARATUS AND MATERIALS:

volumetric flask. graduated pipette. beaker. howitzer and stamp.

scaremonger. dropper distilled H<sub>2</sub>O. 1 % ethanoic acid. 1 M NaOH.

Riboflavin. multivitamin tablet. glacial acetic acid. Procedure: Preparation of criterion: A 100 ppm stock criterion of vitamin B2 was prepared by fade outing 0. 01 g of vitamin B2 pulverization in 100 milliliter of 1 % ethanoic acid. Working criterions were prepared by pipetting 0. 5 milliliter. 1. 5 milliliter. 2. 5 milliliter. 3. 5 milliliter. and 4. 5 mL aliquots of the standard

solution into separate 50 milliliter volumetric flask and was thinning with the 1 % ethanoic acid. Preparation of sample:

One tablet of the kids multivitamin was weighed and was grind by the howitzer and stamp in order to acquire the tablet pulverization. One fifth of the tablet pulverization was weight accurately and transferred into the 250 milliliter volumetric flask and was dissolved with 3 milliliters of 1 M NaOH and glacial acetic acid and was thinning with distilled H<sub>2</sub>O. 25 milliliter of the aliquot was pipette from the 250 milliliter volumetric flask and was doing up in the 250 milliliter another volumetric flask and 1 in 10 dilutions was farther brand. The on the job criterions and the sample were measured by utilizing UV-Vis spectrometer at 460 nm wavelength 10 millimeter vitreous silica cuvette.

Discussion: In this experiment the UV-Vis was selected as a instrument usage for the finding of vitamin B<sub>2</sub> in multivitamin because UV-Vis is a good instrument for the qualitative and besides quantitative analysis where for the qualitative UV-Vis Cam step or find the wavelength at the maximal optical density which is for the vitamin B<sub>2</sub> the wavelength is 460 nanometer. for the quantitative UV-Vis can find the concentration of the sample that incorporating same compound as a mentions criterion. Beside the construction of the vitamin B<sub>2</sub> that have conjugated construction and besides have a chromophores that make it able to utilize UV-Vis spectrometer. Riboflavin is really sensitive to the presence of direct visible radiation. because when vitamin B<sub>2</sub> was exposed to the visible radiation it wills decompose and converted to lumiflavin which is the compound that can destruct vitamin C.

that why in readying of riboflavin solution all the glasswork was cover with the aluminium foil and besides was done in the dark conditions. Other than that. vitamin B2 was thining with the ethanoic acid in order to do it more stable. The consequences in chart 1 shows that Champs multivitamin has the higher sum of vitamin B2 content in the tablet is about 0. 1155 milligram followed by Chewies multivitamin 0. 1131 milligram and Scott's 0. 0672 milligram. The sum of the vitamin B2 obtain was somewhat different with the published value for the tablet where tabular array 4 shows that the sum of the mentions for the scott's is 1. 5 mg. for the Chewies and Champs were 0. 25mg and 0. 60mg.

The differences happened possibly due to the some mistake such as systematic mistake either it is personal mistake or instrumental mistake. Personal mistake was happened cause by the inattention or sloppiness when conducted the experiment. possibly incorrect in gauging the degree of the liquid with the regard to graduation in pipette when utilizing the pipette for mensurating and present the sample solution. Besides for the instrument mistake it possibly cause by the measurement devices that use in this experiment such as pipette. do it may present volume somewhat different from the indicated by their graduation. In order to acquire the exact consequence all the mistake must be eliminate or reduced by improved the personal accomplishment in conducted or utilizations of the instrument or devices besides avoid uses the broken devices that can impact the consequence. Decision:

As the decision the sum of the vitamin B2 can find by utilizing UV-Vis spectrometer. while the sum of the vitamin B2 per tablet in the multivitamin

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was calculated is 0.1155 milligram for the Champs, 0.0672 milligram for the Scott's and 0.1131 milligram for the Chewies multivitamin. From the consequence we know that the sum calculated was somewhat different with the published value for the tablets.

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