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**A novel approach to determine the unknown concentration of a soil solution using UV spectrophotometer**

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**Abstract**

Concentration is one of the primitive aspects in chemistry, which describes the extent of abundance of a solute in a given solution. Determining the concentration of a solution that does not has a chemical formula and with unknown molecular weight is one amongst the difficult topics. In this study, we have analyzed the concentration of such solutions using a comprehensive mathematics along with Beer – Lambert law for the UV spectrophotometer results. Experimental studies were conducted using the standard solutions of Biochar, Coir, Wood bark and Sawdust which were extracted from same *Coccus nucifera* species to verify the equality of concentrations. Solutions were prepared by mixing the raw materials with water at 1:2 (w/w) ratio. The hypothetical concentrations of solutions were in same range since each of the specimens contains similar type of organic content and all the solutions were prepared in same organic content: water empirical ratios. The objective of the study was achieved by proving that the concentration found using this novel approach for each specimen are almost equal since the specimens are from same origin, which simultaneously verified the hypothetical concentrations are same through mathematical computations. A comprehensive understanding in finite integrals is compulsory to get proficiency with this method. Furthermore, this approach is applicable to find the concentration of any soil solutions. The benefit of this model has vast scopes in future at resolving several queries related to medical, commercial, scientific, and industrial issues related to the concentration of solutions.

**Keywords:** Concentration, Beer-Lambert law, UV spectrophotometer, Finite integral

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