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Anthocyanin acts as scavenger for heavy metal ions, attack cancer cell, and interacts with uric acid and urea to expel it through urine system



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Anthocyanin is found mainly in red beet juice, cherry, red rose. It is red color pigment with high solubility in water. The power of exchangeable proton in its juice from red beet nearly 6.4 while in red rose juice is more acidic i.e. $\text{pH} < 6.4$. The expected structure of M-Cyanidin-3-glucoside complex in acidic pH ($\text{M} = \text{Pb}, \text{Cd}$). This is similar to the behavior of cation exchanger in demineralization processes of water (hetero reaction) while with the anthocyanin juice is homogenous reaction. Addition of heavy metal salt like metal nitrate (water soluble) result in sudden precipitation of metal anthocyanin and the color of the solution disappear slowly and the pH of the solution become more acidic to the formation of nitric acid in which the pH reaches nearly four. No precipitations shown with sodium and potassium ions while with magnesium and calcium ions need high concentration of them. Anthocyanin can be used to purify water from poisonous metals ions. Anthocyanin color in acidic solution is shine red while changed to reddish green color in basic solution and deep red color in neutral solutions so it is suitable indicator in acid-base reaction more suitable than classically used phenolphthalein indicator which is water insoluble. Irrigation of red rose plant with acidic solution like hydrochloric acid result in changing the color of the rose from deep red to shine red, also that happen when red rose plant left in acidic atmosphere. This is a good test for detection of acidic rain in industrial area.

Biography

Jaleel Kareem Ahmed has completed his PhD from Baghdad University. He is the Dean of the Institute of Foundry and Hammering. He has registered eight patents with 40 published papers and three books. He is a Member in Who is Who network. He is a Reviewer in Jon Wiley and Sons and Editorial Board Member of Science Publishing Group and a Member in Encyclopedia of Chemistry Scientists. He has got the Iraqi Scientist Medal. Currently, he is a Professor of Physical Chemistry in the College of Materials Engineering, Babylon University, Iraq.

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