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Extraction of beta-carotene from *Spirulina* and analysis by using U.V spectrophotometer

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Spirulina is a primitive Blue-green algae used as dietary supplement is rich source of BETA-CAROTENE which is one of the major carotenoids, vitamin A is generally found as beta-carotene and retinol and converted to vitamin A in body, this is best known as pre-cursor to vitamin A (Retinol) in body. While vitamin A, a fat soluble nutrient, can be toxic if taken in excess beta-carotene can be safely ingested. Beta carotene is extracted from spirulina in two steps, Extraction in methanol and analysis of beta carotene using U.V spectrophometer, the experiment is carried in two ways to study affect of light on compound. One is carried out in light and other is in dark conditions. The pure spirulina algae powder is weighed and dissolved in few mL of dimethylsulfoxide(DMSO) then centrifuged at 4200RPM and supernant is collected till the solution is clear. To that extract few mL of heptanes is added and saponified by using freshly saturated KOH in methanol. Then heptanes layer is collected and read the maximum absorbance by using heptanes blank. Compare the sample extract spectrum with the standard spectrum of known concentration and other published spectrum because to know our extract has beta-carotene. Prepare the standard sample solutions of beta carotene with known concentrations and read the absorbance of beta carotene, by plotting graph absorbance against concentration some were in between the known concentration sample extract get pointed. Now calculating the concentration.

Report: By the above results I conclude that the extract performed in the dark conditions has the more concentration compared to that in the light. Thus states that beta-carotene has oxidative effect towards light.

Biography

Naveen Kumar Buyankar completed his Masters degree from University of Greenwich, London, UK. After that did internship on Pre-formulation studies under guidance of Prof. Patricia J. Harvey. He received many awards and honors during academia. Did Bachelor's in pharmacy and Diploma in pharmacy from Osmania University, India. He is member of Indian Pharmaceutical Association (IPA) and Registered pharmacist from Pharmacy Council of India (PCI).

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Gold nanoparticles based colorimetric aptasensor for theophylline

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A simple calorimetric aptasensor based detection system for theophylline was proposed using stable RNA aptamer and gold nanoparticles (GNPs). Theophylline, a purine derivative and structurally similar to caffeine is used in the treatment of respiratory diseases such as chronic obstructive pulmonary disease (COPD) and bronchial asthma under a variety of brand names. A RNA aptamer with very high specificity, selectivity and with enhanced stability by 2'-flouro modification was employed in present work. The structural modification of 2'-hydroxyl group of ribose was done in all pyrimidines (5'GGc GAu Acc AGc cGA AAA GGc ccu uGG cAG cGu c3') as represented in lower cases in a 34-mer length aptamer. RNA aptamer binds to GNPs by simple electrostatic interactions thereby inhibiting salt induced aggregation. Whereas, Theophylline's presence in sample will shift affinity of GNPs from Aptamers, will loose, and strongly binds to theophylline making GNPSs "Naked" so as undergo salt induced aggregation and color changes from red to purple. By successfully optimizing the concentration of aptamer, GNPs, salts and stability of the aptamer, the lower detection limit of theophylline was achieved up to 0.05µg/ml. Analyses of theophylline in samples were carried out, and the observed recovery was 97-98.7% with a relative standard deviation in the range of 2.69-19.4%. The results obtained were compared and validated with classical HPLC method. This colorimetric aptasensor can be used for onsite colorimetric detection.

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