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Detection and estimation of vitamin D2 in *Catharanthus roseus* by HPLC and other molecular spectra instruments as a source of vitamin D3 production

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Theoretical: Vitamin D is one of fat-soluble vitamins, considered as steroid hormone. It is regulate and responsible for improving the metabolism and absorption of calcium, iron, magnesium, zinc, and phosphate in small intestine. Vitamin D is an organic chemical compound or a group of related compounds, the most important compounds of this group is vitamin D3 (cholecalciferol) and vitamin D2 (ergocalciferol), both of them can be obtained from food and dietary supplements.

Aim of the Study: This study aimed to investigate the presence of vitamin D2 in *C. roseus*, in addition to qualitative and quantitative detection in aqueous, alcoholic extract, and dry powder of plant leaves using HPLC and other molecular spectra instruments to make sure the extent of possibility to use it in practical as a major source for vitamin D3 production in industrial scale; in order to use it in the medical, pharmaceutical and what is called alternative medicine (herbs) fields.

Methodology: Shimadzu HPLC with UV detector Spectrophotometer was used for qualitative and quantitative estimation of vitamin D2 in aqueous extracted of *Catharanthus roseus* plant using pure standard vitamin D2 (ergocalciferol) measured at reference conditions to set and fix the real retention time (RT). Intensive analysis was conducted on aqueous, alcoholic extract and dry powder of plant leaves using modern and sophisticated instruments. Alcoholic extraction used for analysis by UV-VIS spectrophotometer; transparent disk of potassium bromide and dry powder of plant leaves used for analysis using Infra-red, while dry powder of *C. roseus* leaves were used for direct analysis using attenuated total reflection-Fourier transform infrared spectroscopy (ATR-FTIR).

Conclusion: This study concluded that quantitative results of HPLC shows that *C. roseus* contain good acceptable concentration of Vit.D2 in drying weight of plant up to 187.840 IU/gm. Qualitative results obtained from HPLC, UV-VIS, IR, ATR-FTIR match the effective groups of pure standard Vit.D2 and alcoholic extract, dry powder of *C. roseus* plant.



Biography

Mohammed Abbood Ayyash holds a Bachelor's degree in Chemistry from the University of Baghdad at 1998, in addition to a Master's degree in Clinical Biochemistry Science in 2016 from the University of Babylon. He works in the Ministry of Science and Technology, Food Pollution Research Centre and has 16 years of experience in the field of Environmental Pollution and Food Safety.

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