

Optimized and Cost Efficient Method for the Production of Ubiquinone (Coenzyme Q10) by using Natural Precursor

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Abstract—Ubiquinone CoQ10 is a naturally occurring Quinone that is found in the most aerobic organism from bacteria to mammals. It plays an essential role in the electron transport chain and is a powerful antioxidant used by the cell for growth and maintenance. It also acts as the important nutrient supplement. The intake of CoQ10, 30-60 mg per day has been generally recommended by researchers. So, the purpose of this study was to implement fermentation process optimization for the production of Coq10 by using natural precursors. Using of natural precursor like tomato, carrot, tobacco is results in the enhancement of the production of CoQ10 using bacterial strain *Brevundimonas diminuta*. Coq10 yield has been increased significantly when different concentration of precursor like tomato (containing lycopene) and tobacco juice (having solanosole) was used along with the production medium. Further extraction using liquid-liquid solvent extraction and purification using silica gel was done. And then the quantification by HPLC analysis by comparing the standard Coq10. The enhanced production of CoQ10 achieved by optimization of process variables using response surface methodology (RSM). The amount of CoQ10 produced is much more due to the natural precursor and optimized media.