

Laser Tweezers Raman Spectroscopic Investigation of Geranylgeranyl Pyrophosphate Synthase in Recombinant *Schizosaccharomyces pombe* Cell

G. Basar¹, S. Kin¹, Guler Temizkan^{2,3}, Tuba Gunel^{2,3}, S. Akyuz⁴

¹Istanbul Technical University, Faculty of Sciences and Letters, Physics Engineering Department, 34469, Maslak, İstanbul, Turkey, ²Istanbul University, Faculty of Science, Department of Molecular Biology and Genetics, 34134, Vezneciler, İstanbul, Turkey, ³Istanbul University, Research and Application Center for Biotechnology and Genetic Engineering 34134, Vezneciler, İstanbul, Turkey, ⁴Istanbul Kültür University, Faculty of Sciences and Letters, Physics Department, Bakırköy 34156, İstanbul, Turkey

Carotenoids are the most widespread group of pigments found in nature, synthesized de novo by all photosynthetic organisms and some non-photosynthetic bacteria and fungi [1]. Carotenoids and several classes of economically essential metabolites such as sterols, quinones and rubber are derived from the isoprenoid pathway. The gene encoding geranylgeranyl pyrophosphate synthase (GGPPS) from bell pepper (*Capsicum annuum*) which key enzyme in this pathway was previously cloned and its heterologous expression was analyzed in *Schizosaccharomyces pombe* a suitable model organism for eukaryotes [2]. GGPPS gene was shown to be successfully transcribed by Dot and Northern hybridization. Comparison of the protein profiles from recombinant and host cells by SDS-PAGE revealed that the protein band of recombinant cells similar to GGPPS protein band.

In this study, host cell (leu1-32) and recombinant cell which contained cDNA encoding GGPPS were analyzed with Laser Tweezers Raman Spectroscopy (LTRS). Spectral alterations of the host structure due to cDNA encoding GGPPS were investigated.

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- [2] T. Günel, M. Kuntz, N. Arda, S. Ertürk, G. Temizkan: *Metabolic Engineering for Production of Geranylgeranyl Pyrophosphate Synthase in Non-Carotenogenic Yeast Schizosaccharomyces pombe*. Biotechnology and Biotechnological Equipment 20 (2006) 76-82.