

Enzyme 2019: Efficient synthesis of L-theanine in recombinant *Escherichia coli* containing γ -Glutamyltranspeptidase gene from *Pseudomonas nitroreducens* (PnGGT)

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L-Theanine (γ -glutamylethylamide) is a non-protein amino corrosive present in tea. It adds to the umami taste and exceptional flavor to green tea implantation. It was accounted for to have numerous advantageous physiological impact, particularly hostile to stress and improvement of fixation for learning capacity. It very well may be acquired by substance combination or extraction from green tea, however the two procedures include tedious, cost-insufficient and confounded operational procedure. Henceforth, biotechnological creation of L-theanine become fascinating by utilizing microbial compound, for example, glutamyltranspeptidase (GGT). GGT (EC 2.3.2.2), a heterodimeric protein found in different sources from microorganisms to warm blooded animals catalyzes the exchange of the γ -glutamyl moiety of γ -glutamyl compound to γ -glutamyl acceptors, for example, amino acids and peptides. Bacterial GGTS have been accounted for in *Escherichia coli* (EcGGT),

Bacillus licheniformis (BIGGT), and *Pseudomonas nitroreducens* (PnGGT). Our past examination on location coordinated mutagenesis of PnGGT proposed that Trp525 was a key amino corrosive buildup in deciding the inclination of acceptor substrate in the response. Besides, *E. coli* delivering W525D freak of PnGGT (*E. coli*-W525D freak) indicated low hydrolysis action with high exchange movement, causing the expansion of L-theanine creation from ethylamine and L-glutamine. Improving the proficiency of L-theanine creation utilizing *E. coli* - W525D freak was additionally accomplished by entire cell calcium-alginate immobilization with assurance of ideal pH, temperature, and molar substrate proportion. Under the appropriate condition, pH 11, 40°C, and substrate molar proportion of 1:10, L-glutamine: ethylamine, *E. coli* W525D freak showed the most noteworthy theanine creation contrasted with *P. nitroreducens*, *E. coli*-wild sort, and other recombinant freak strains.