

Production of glutamate decarboxylase(GAD) from *E. coli*(ATCC 11246)

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Glutamate decarboxylase(GAD) is a sole enzyme to synthesize  $\gamma$ -aminobutyric acid (GABA), a major inhibitory neurotransmitter in higher animals. GAD is considered unique among enzymes involved in the neurotransmitter synthesis because both its substrate and product are neurotransmitters and exhibit opposite actions. Reported structural studies on bacterial, plant, insect and mammalian GADs are reviewed, and the differences in the structures of GADs and their relation to chemical reaction and physiological functions are discussed. For bacterial GADs, *Escherichia coli* GAD provides some interesting information. We chose recombinant *E. coli* (ATCC 11246). Applications are arginine decarboxylase, glutamate decarboxylase 1 (brain) glutamic acid decarboxylase, histidine decarboxylase and lysine decarboxylase produced by *E. coli* (ATCC 11246). In this study, investigated changes to condition of media type and compositions. And compared commercial GAD with bacterial GAD from *E. coli* (ATCC 11246).