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# Purification and Characterization of Glutamate Decarboxylase from *Aspergillus oryzae*

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We purified glutamate decarboxylase (GAD) [EC4.1.1.15] from *Aspergillus oryzae* and characterized its biochemical and kinetic properties. GAD was purified by ammonium sulfate at 30–70% saturation and chromatographies on Sephacryl S-300, DEAE-FF and CM-FF. The purification of GAD from the crude enzyme solution was 40-fold and the recovery rate was 4.9%. About 230 μg of purified enzyme was obtained from 20 g of the mycelia of *A. oryzae*. The purified preparation of the enzyme showed a single protein band on SDS-PAGE. The molecular weight of purified GAD by SDS-PAGE and gel filtration was estimated to be 48 kDa and 300 kDa, respectively, suggesting that purified GAD had a hexameric structure. The $K_m$ value for L-glutamic acid, a substrate of the enzyme, was estimated to be 13 mM. The optimum pH and temperature of GAD were 5.5 and 60°C, respectively. The GAD activity was stable up to 40°C.

**Keywords:** glutamate decarboxylase, *Aspergillus oryzae*, purification, γ-amino-butyric acid

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