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Purification and Characterization of an Exo-1,5-α-L-Arabinanase from *Aspergillus sojae*

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An exo-1,5-α-L-arabinanase was purified as an electrophoretically homogenous protein from a liquid culture of *Aspergillus sojae*. The molecular mass of the purified enzyme was estimated to be 41 kDa by sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) and 43 kDa by gel filtration chromatography. The isoelectric point of the enzyme was 3.7. The maximum velocity of carboxymethyl (CM)-linear arabinan degradation by the exo-arabinanase was attained at 50°C and at pH 5.0. The purified enzyme was stable in a range from pH 6.0 to 8.0 and up to 45°C. The activity of the enzyme was significantly inhibited by Ag^{+} (1 mM) and Cr^{2+} (1 mM), and stimulated by SDS (5 mM). The K_m value for the 1,5-arabinan from beet was 5.8 mg/mL. The sequence of amino-terminus (25 residues) of the exo-arabinanase from *A. sojae* exhibits extensive identity (69%) with that of *Penicillium chrysogenum*. After the hydrolysis of 1,5-arabinan from beet, the major product was arabinobiose, and no liberation of arabinose was observed in the reaction mixture.

Key words: *Aspergillus sojae*, exo-1,5-α-L-arabinanase, 1,5-arabinan

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