ELSEVIER

Journal of Biotechnology 95 (2002) 171–179

JOURNAL OF Biotechnology

www.elsevier.com/locate/jbiotec

Screening and characterization of aldehyde dehydrogenase gene from *Halomonas salina* strain AS11

Thanya Sripo [a], Amornrat Phongdara [a,*], Chokchai Wanapu [b], Allan B. Caplan [c]

[a] *Department of Biochemistry, Faculty of Science, Prince of Songkla University, Hatyai, Songkla 90112, Thailand*
[b] *School of Biotechnology, Institute of Agriculture Technology, Suranaree University of Technology, 111 University Avenue, Maung, Nakon Ratchasrima 30000, Thailand*
[c] *Department of Microbiology, Molecular Biology and Biochemistry, College of Agriculture, University of Idaho, Moscow, ID 83844-3052, USA*

Received 9 August 2001; received in revised form 2 January 2002; accepted 14 January 2002

Abstract

A population survey was made of moderately halophilic bacteria in prawn pond sediment in the Songkla region of Thailand. Twenty-two isolated halophilic bacteria capable of growing on modified ATCC culture medium 1270 for halobacterium were then assayed for aldehyde dehydrogenase (ALDH) activity which might be involved in the metabolism of xenobiotic compounds. One isolate, designated AS11, was selected based on its high amount of ALDH activity. This organism can grow at sodium chloride concentrations ranging from 2.5 to 25%, although optimum growth occurs at 5% NaCl. Phenotypic and phylogenetic studies indicated that AS11 was an isolate of *Halomonas salina*. The *aldh* gene coding for this enzyme was then cloned. The open reading frame of the *aldh* gene was 1521-bp long and coded for a protein of 506 amino acid residues with a calculated molecular mass of 55 kDa. The *aldh* gene product proved to be 76% identical to the NAD-dependent acetaldehyde dehydrogenase gene from *Pseudomonase aeruginosa*.

Keywords: Halobacterium; *Halomonas*; Aldehyde dehydrogenase