ABSTRACT

The invention provides a formate dehydrogenase having high specific activity, small Km values for formate and NAD, broad temperature and pH ranges of stability, broad temperature and pH ranges for action, and capable of regenerating a coenzyme with good efficiency in case of being present in an enzymatic reduction reaction system without inactivated.

The invention provides the enzyme mentioned above which has characteristics suited for industrial application by screening for soil formate dehydrogenase-producing microorganisms. The invention further provides a DNA containing the gene coding for the enzyme of the invention, a recombinant DNA constructed using a vector, and a transformant obtained by using this plasmid. The invention further provides a process for producing the formate dehydrogenase of the invention by using any microorganism of the genus *Thiobacillus* or a transformant constructed by using a formate dehydrogenase gene derived from above strain of microorganism, and a process for regenerating a coenzyme by using said enzyme in an enzymatic reduction system.



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