Coenzyme linked Dehydrogenases of Acetic Acid Bacteria

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Eighteen strains of acetic acid bacteria belonging to the species *Acetobacter aceti*, *Acetobacter rancens*, *Acetobacter mesoxydans*, *Acetobacter xylinus* and *Acetomonas oxydans* were examined with regard to the soluble dehydrogenases for aldoses, alcohols and polyalcohols. The aldoses glucose, galactose, mannose, xylose and arabinose are attacked by NAD-linked dehydrogenases. *Acetomonas oxydans* shows a strong NADP-linked dehydrogenase activity to aldoses, *Acetobacter aceti* shows a weak one, *Acetobacter rancens*, *mesoxydans* and *xylinus* do not produce NADP-linked dehydrogenases to aldoses.

All alcohols are oxidized by NAD-linked dehydrogenases. *Acetobacter aceti*, *Acetobacter xylinus* and *Acetomonas oxydans* produce NADP-linked ethanoldehydrogenase, *Acetobacter rancens* and *mesoxydans* has no NADP-linked dehydrogenase activity.

Polyols are mainly oxidized by NAD-linked dehydrogenases. The NADP-linked mannitoldehydrogenase activity and the NAD-linked sorbitoldehydrogenase activity are very high. With the aid of the NADP-linked dehydrogenases to alcohols and aldoses the acetic acid bacteria examined are classified in 4 groups.

Acetomonas oxydans has high NADP-linked ethanol- and glucosedehydrogenase activity.

Acetobacter aceti has a weak NADP-linked ethanol- and glucosedehydrogenase activity.

Acetobacter xylinus has only a NADP-linked alcohol-dehydrogenase activity and no glucosedehydrogenase activity.

- *Acetobacter rancens* and *Acetobacter mesoxydans* have no NADP-linked dehydrogenases.

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