

## Comparison of enzymatic fuel cell systems with different enzyme

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Electric properties were investigated using different enzymatic systems (oxidoreductase, alcohol dehydrogenase(ADH), glucose dehydrogenase(GDH) and lactate dehydrogenase(LDH)). In these enzymatic fuel cell(EFC) worked, nicotinamide adenine dinucleotide (NAD) was used as cofactor and PQQ (Pyrrolo Quinoline Quinone) as an electron mediator. The enzyme and cofactor were entrapped with the membrane on the surface of electrode. The cyclic voltammetry (CV) was applied to study the tendency of voltage and electric current in bioanode electrocatalytic process. In this study the power densities were compared at different enzymatic systems in EFC. The power densities of three enzymatic systems in EFC were 0.997  $\mu\text{W}/\text{cm}^2$  (LDH), 1.64  $\mu\text{W}/\text{cm}^2$  (GDH) and 2.60  $\mu\text{W}/\text{cm}^2$  (ADH), respectively. The ADH modified electrode showed the highest power density.