

Novel electrode for bioelectrochemical denitrification using permeablized
Ochrobactrum anthropi SY509

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Biological denitrification among various denitrification methods is the most widely accepted process because of its economical and environmental advantages. However, the feeding of carbon source is required to maintain the biological activity. Novel bioelectrochemical method which does not need carbon source was developed. Denitrification was carried out by permeabilized *Ochrobactrum anthropi* SY509 containing denitrifying enzymes; nitrate reductase, nitrite reductase, nitric oxide reductase and nitrous oxide reductase. Mediator was used for electron transfer. In this research, mediatorless method was contrived. For the mediatorless reaction, novel electrode was suggested. Copper powder was chosen as a material for conductivity. When the copper powder and permeablized *Ochrobactrum anthropi* SY509 were entrapped by polymer material, high denitrification efficiency was obtained without mediator.