

Novel 3-dimensional bioelectrode for mediatorless bioelectrochemical denitrification

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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 using electricity as electron donor was developed. *Ochrobactrum anthropi* SY509 was permeablized as a biocatalyst, and novel mediatorless electrode was prepared. For the mediatorless reaction, conducting powders were chosen as conducting materials. The conducting material and the permeablized biocatalysts were entrapped by porous matrix to make the electrode. Using this electrode, high denitrification efficiency was obtained without mediator.