Laccase Power

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The researcher designed an efficient rechargeable battery reliant on biological catalysts for the continual generation of electricity. An experiment was first carried out to investigate the effect of enzymes on voltage. A series of enzymes were immobilized and tested to find the one that resulted in the highest voltage. Each enzyme was made into a bead and tested in sulfuric acid acid electrolyte contained in most rechargeable batteries. The laccase enzyme was selected as the highest voltage producing enzyme, able to reverse the reaction in a rechargeable battery. In a normal rechargeable battery electrical energy from an outside source would be applied to the secondary cell to reverse the negative to positive electron flow that happens during discharge. Instead of electricity the researcher now used the laccase enzyme to perform the reversible changes in the battery. To produce electricity in the battery the electrolyte would be broken down and when completely broken the battery would go flat instead of using electricity to restore the broken down electrolyte the laccase enzyme was introduced to do so. The modified enzyme powered rechargeable battery would be more convenient than the electrically powered one as it could be used in remote areas with no electrical access or to reduce electrical consumption.

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