

Bio-LED composed of Chlorophyll *a*/Viologen Hetero-Film

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Abstract

Electroluminescence (EL) is the light emitted by a solid through which an electric current carriers are passing, in addition to its normal thermal emission. It implies the presence of electronic excited states with electronic carrier populations larger than their thermal equilibrium value. The electroluminescent organic solids are insulators. Light is produced by recombination of electrons and holes that have been injected at the cathode and anode respectively.

In this study, the multi-layered bio EL device was fabricated using not only the chlorophyll *a* Langmuir-Blodgett (LB) film, which used as the emitting layer, but also viologen as hole transporting material. And then aluminum was vacuum deposited onto the electron transporting layer surface as the top electrode. The chlorophyll *a* LB layer was deposited onto the ITO electrode at the optimized condition in reference site [1,2]. The current-voltage -luminescence (*I-V-L*) characteristics of the bio EL device were measured using the source measurement unit. The electroluminescence spectrum of EL emission was measured by the spectrofluorometer and power supply unit.

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References

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