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## The study of solvent ratio of diphenyl oxalate on chemiluminescence

This research aimed at studying the effect of the solvent ratio on chemiluminescence that has been widely applied in glow sticks. Dichloromethane and ethyl acetate were used as solvents. The fluorescent solution was the mixture of diphenyl oxalate solvent and fluorescent dye rhodamine B that was stimulated by 405-nanometers laser for fluorescent spectrum measurement before the chemiluminescence experiment. The fluorescent solution was varied the concentration and solvent ratio. For the chemiluminescence experiment, diphenyl oxalate substance was dissolved in solvents combined with rhodamine B that interacts with the mixture of hydrogen peroxide and acetonitrile, which result in chemiluminescence. Then, it was measured the duration and intensity of light by a photodiode detector. The study revealed that the concentration and solvent ratio of fluorescent solution impact the fluorescent spectrum due to the opacity and solubility. Also, the increasing of ethyl acetate and decreasing of dichloromethane affected a longer duration of light. The intensity of light in some ratios was alternating high and low. It should emit the light as a long time and high intensity that be suitable for applications. The solvent ratio at 3:7 and 5:5 (1:1) is better than the other samples in this research.

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