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Studies on the Synthesis of 1,8-Diazafluoren-9-One (DFO)

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STUDIES ON THE SYNTHESIS OF 1,8-DIAZAFLUOREN-9-ONE (DFO) (DFO)

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1,8-Diazafluoren-9-one (DFO, **C**) is a new reagent used in the detection of latent fingerprints. It reacts with the amino acids present in fingerprints to give a fluorescent product under ultraviolet light. It is an improvement over ninhydrin, which has been used in forensic science laboratories for years. The synthetic methodology to date provides only low yields of DFO. Therefore, a better method is needed to provide significant amounts for the study of the reaction product with amino acids. Thus, the three step synthesis of DFO was studied in order to improve the yields and simplify the procedure. Thin layer chromatography and infrared spectroscopy were used to characterize the products of each step. The product of the first step is 6-methoxy-4,7-phenanthroline (**A**), which has been successfully prepared several times through a Skraup synthesis. In step two, an oxidation reaction occurs to produce phanquone (**B**). This was more difficult to produce. The procedure was tried repeatedly with slight variations. The last step is to prepare DFO through a rearrangement reaction.

