

## Abstract

1,8-Diazabicyclo[5.4.0]undec-7-ene (DBU), an amidine compound, is widely utilized in organic synthesis as a catalyst, complexing ligand, and non-nucleophilic base. Its applications include serving as a catalyst, a resin curing agent, and for separating fullerenes in conjunction with trimethylbenzene. On the other hand, acridine derivatives, a type of nitrogen heterocycle, are used in producing dyes and drugs. Some are efficient fluorescent chemosensors for metal ions and valuable stains for cell cycle determination. Combining acridine with the imidazole nucleus may enhance their properties. In this study, the synthesis of 3H-imidazo[4,5-a]acridine-11-carbonitriles was achieved by reacting 1-alkyl-5-nitro-1H-benzimidazoles with 2-(4-methoxyphenyl)acetonitrile and benzyl cyanide, involving nucleophilic substitution of hydrogen. Notably, the catalytic influence of 1,8-diazabicyclo[5.4.0]undec-7-ene (DBU) remarkably led to the high yields of the synthesized compounds. Structural verification of the synthesized dyes was accomplished through comprehensive physical spectral and analytical data analysis.

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