

# CYCLOCONDENSATION OF DISUBSTITUTED NAPHTHALIC ANHYDRIDES WITH O-PHENYLENEDIAMINE



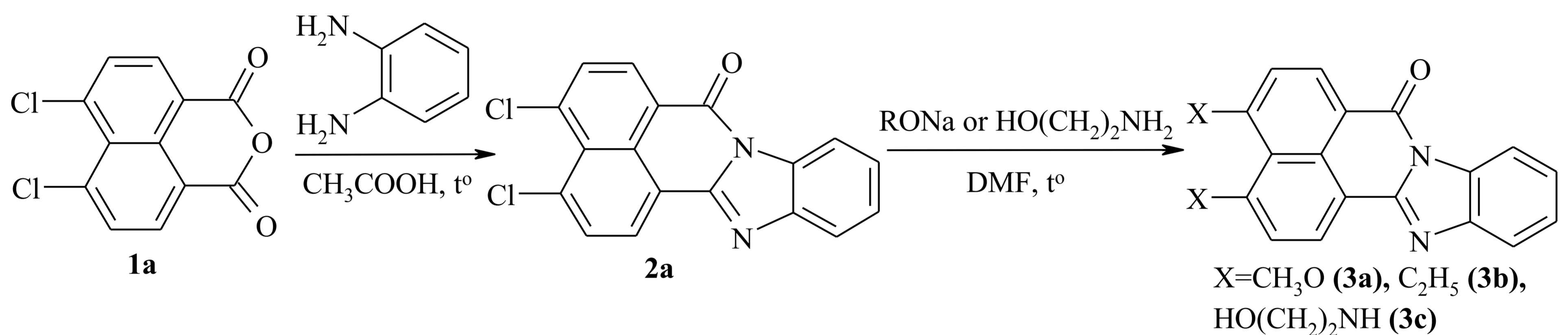
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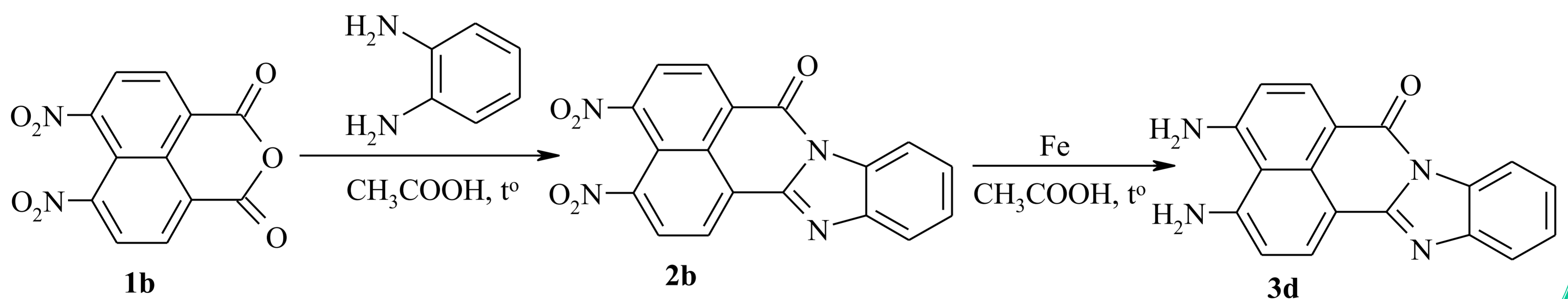
*The range of condensation products of 1,8-naphthalic anhydrides with o-phenylenediamine with electron donating substituents in positions 4 and 5 of naphthalene ring were obtained. The synthesized compounds are fluorophores with orange fluorescence.*

1,8-Naphthoylene-1',2'-benzimidazole derivatives containing electron donating substituent in position 4 of naphthalene ring are useful as fluorophores. It can be predicted that introduction of the second electron donating substituent in position 5 will improve the effective fluorophore properties.

1,8-Naphthoylene-1',2'-benzimidazole derivatives with methoxy-, ethoxy- and 2-hydroxyethylamino groups in position 4 and 5 (**3**) were synthesized by condensation of 4,5-dichloro-1,8-naphthalic anhydride (**1**) with o-phenylenediamine in acetic acid followed by interaction of 4,5-dichloro-1,8-naphthoylene-1',2'-benzimidazole (**2**) with sodium methoxide, sodium ethoxide or ethanolamine in DMF.



4,5-Diamino-1,8-naphthalimide-1',2'-benzimidazole (**3d**) was obtained by reduction of dinitro compound (**2b**) with iron powder in acetic acid.



The target products (**3a-d**) are crystalline substances with orange luminescence. The absorption and luminescence maxima of 4,5-disubstituted 1,8-naphthoylene-1',2'-benzimidazoles are shifted to the long-wave region by 15-30 nm, and the molar absorption coefficient is one and a half times more compared to the corresponding 4-monosubstituted derivatives.