

# Thermal and Photophysical Studies of Binary Mixtures of Liquid Crystal with Different Geometrical Mesogens

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## 1. Synthesis of 4-(4-alkoxyphenylimino)methylphenyl-4-alkoxybenzoate In+m

A mixture of 0.01 mole 4-((4-alkoxyphenylimino)methyl)phenol and 4-alkoxybenzoic acid was dissolved in 25 ml dry methylene chloride. *N, N'*-dicyclohexylcarbodiimide (DCC, 0.02 mole) and catalytic amount of 4-dimethylaminopyridine (DMAP), were added. The reaction mixture was stirred for 72 hours at room temperature. Separated *N,N*-cyclohexylurea was filtered off and the filtrate was evaporated. The obtained product was recrystallized twice from ethanol to give TLC pure products [i].

## 2. Synthesis of 4-alkoxyphenylazo-4'-phenyl-4''-alkoxybenzoates II<sub>n+m</sub>

Molar equivalents of the 4-alkoxy phenylazo phenol (*Am*) and 4-*n*-alkoxybenzoic acid (*n* = 6, 8, 10, 12, 14, 16 carbons) were dissolved in dry methylene chloride. To the resulting solution, 2-molar equivalents of dicyclohexylcarbodiimide and few crystals of 4-(dimethylamino)-pyridine, as catalyst, were added and the solution left to stand for 72 hours at room temperature with stirring. The solid separated was then filtered off and the solution evaporated. The solid residue obtained was recrystallised twice from acetic acid and twice from ethanol to give TLC pure products, indicated by TLC as one clear spot in their TLC chromatogram and sharp melting [ii].

[i] Ahmed, H.; Hagar, M.; Saad, G., Impact of the proportionation of dialkoxy chain length on the mesophase behaviour of Schiff base/ester liquid crystals; experimental and theoretical study. *Liquid Crystals* **2019**, 1-10.

[ii] Ahmed, H.; Naoum, M.; Saad, G., Effect of alkoxy-chain length proportionation on the mesophase behaviour of terminally di-substituted phenylazo phenyl benzoates. *Liquid Crystals* **2013**, 40, (7), 914-921.