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(4-Formylbenzylidene)-4-ferrocenylaniline

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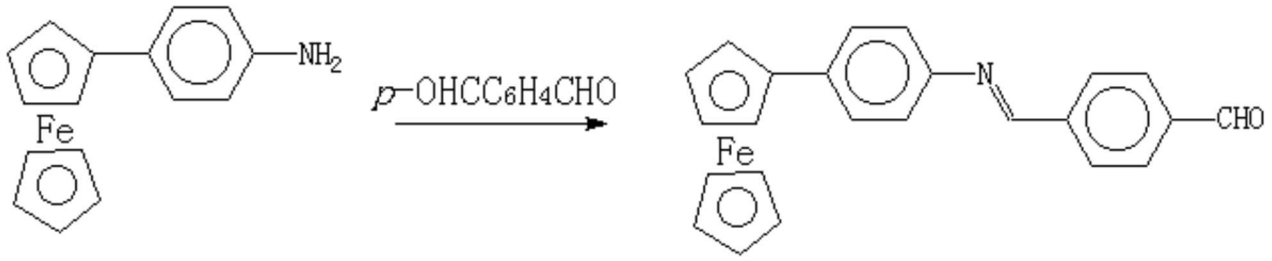

The reaction of 4-ferrocenylaniline with 1,4-benzenedicarboxaldehyde in an equimolar ratio in dilute solution, or with a large excess of the aniline, often gives the diimine product. We have found that through putting the aniline in a Soxhlet extractor and controlling the addition by changing the rate of reflux we are able to get the mono-imine intermediate. The product, (4-formylbenzylidene)-4-ferrocenylaniline is a useful intermediate for the synthesis of mono-substituted ferrocen-containing Schiff's base liquid crystals [1-3].

1,4-Benzenedicarboxaldehyde (4.1 g, 30 mmol) is dissolved into the mixture of 150 ml petroleum ether (boiling range 30-60°C) and 10 ml benzene. 4-Ferrocenylaniline [4] (8.6 g, 30mmol) is put into a Soxhlet extractor. While refluxing, 4-ferrocenylaniline is gradually added into the aldehyde during 24 h. After the condensation reaction is finished, the mixture is cooled and solid is collected by filtration. The solid is washed with 50 ml of ethyl acetate to dissolve the remaining aldehyde. The crude product is crystallized from chloroform to give (4-formylbenzylidene)-4-ferrocenylaniline as a brown powder (6.8g, 56%).

M.p: 209-210°C.

IR(KBr, cm^{-1}): 2840, 2740, 1702, 1624, 1607, 1589, 1520.

^{1}HNMR(DMSO-d_6): 10.07(1H, s, CHO), 8.60(1H, s, CH=N), 4.04(5H, s, C_5H_5), 4.33-4.65(4H, d, C_5H_4), 7.20-7.52(4H, dd, J=8.4Hz, Fc-Ar), 7.96-8.08(4H, dd, J=8.2Hz, Ar).

$C_{24}H_{19}FeNO$: calculated, C, 72.73; H, 4.80; N, 3.54%. Found: C, 72.50; H, 4.91; N, 3.60%.

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Sample Availability: Available from the authors and from MDPI.