SYNTHESIS OF AROMATIC FLUORIDES BY THE REACTION OF FLUOROHALOCARBENES WITH CYCLOPENTADIENE DERIVATIVES UNDER PHASE TRANSFER CATALYSIS CONDITIONS

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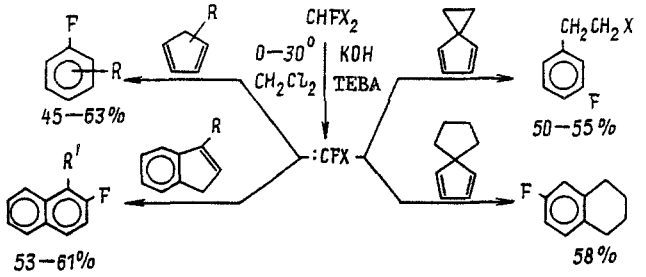
The reaction of cyclopentadiene and its homologs with fluorohalocarbenes generated by the pyrolysis of fluorohalomethanes at 600-750°C leads to fluorobenzene and its derivatives [1, 2]. We have established the possibility of similar efficient syntheses at 0-30°C upon generation of the fluorohalocarbenes from the corresponding haloforms in a two-phase system by the action of aqueous alkali [3]. In this case, spiro-fused cyclopentadienes may be used as the starting dienes in addition to thermally stable alkylcyclopentadienes and indenes



R = Me, Et, *i*-Pr; R′ = H, Me; X = Cl, Br.

A sample of 0.4 mole aq. KOH was added over 30 min with stirring to a mixture of 0.12 mole $CHFX_2$, 0.1 mole diene, and 0.2 g triethylbenzylammonium chloride (TEBA) in 10 ml CH_2Cl_2 at 0°C for $CHFCl_2$ and 20-30°C for $CHFBr_2$. The reaction mixture was stirred at these temperatures for 2 h and filtered through a thin layer of silica gel. The reaction products were isolated by distillation. The structures of the fluoroaromatic products were established by PMR and ^{19}F NMR spectroscopy and chromato-mass spectrometry.

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