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PALLADIUM (0)-CATALYZED ADDITION REACTION OF FLUOROALKYL IODIDES WITH ALKYNES

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Previously we have reported that the fluoroalkyl iodides reacted with alkenes in the presence of palladium(0) to give the corresponding adducts (Acta Chimica Sinica, 43 (1985) 1118). Herei we present the results of the addition reaction of fluoroalkyl iodides with alkynes catalyzed by Pd (0). Fluoroalkyl iodides reacted with various alkynes in the presence of catalytic amounts of tetrakis(triphenylphosphine) palladium (0) without solvent at 80-100°C to afford the adducts in good yields.

$$R_fI + \equiv\!\!-R \xrightarrow{Pd(PPh_3)_4} R_fCH{=}CIR$$

Addition of radical inhibitor, 2-nitro-2-nitrosopropane, to the reaction mixture decreased the conversion of R_fI to 50% as compared with that of control. When diallyl ether was used as the radical trap, a tetrahydrofuran derivative was obtained. A single electron transfer mechanism is suggested.