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-A- Protic reaction : one step process

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Reaction of perfluoroalkyl iodides with undecylenic acid in the presence of zinc powder was investigated. This leads mainly to the formation of two additional adducts in different ratio, according to the nature of the solvent.

These reactions were carried out with two different type of solvents, such as acidic solvents and non dissociating aprotic solvents.

- $R_{F}I + CH_{2} = CH(CH_{2})_{8}CO_{2}H + Zn \xrightarrow{H^{+}} + 49\%$ $R_{F}-CH_{2}-CH_{2}(CH_{2})_{8}CO_{2}H + Zn \xrightarrow{H^{+}} + 49\%$ $R_{F}-CH_{2}-CH(CH_{2})_{8}CO_{2}H = III$ $R_{F}-CH_{2}-CH(CH_{2})_{8}CO_{2}H = III$ $R_{F}-CH_{2}-CH(CH_{2})_{8}CO_{2}H = III$
 - -B- Non dissociating aprotic medium : a two steps reaction involving a zinc catalysis

$$\begin{array}{c} R_{\rm F}I + CH_2 = CH(CH_2)_8 CO_2 H & \overbrace{CH_2Cl_2}^{(Zn)_{cat}} R_{\rm F} - CH_2 - CH(CH_2)_8 CO_2 H & [III] \\ & I \\ R_{\rm F} - CH_2 - CH_2(CH_2)_8 CO_2 H & [I] \\ & + \\ R_{\rm F} - CH_2 - CH_2(CH_2)_8 CO_2 H \\ & + \\ R_{\rm F} - CH_2 - CH(CH_2)_8 CO_2 H \\ R_{\rm F} - CH_2 -$$

In each cases, optimisation of the reactions according to the influence of different parameters will be discussed.