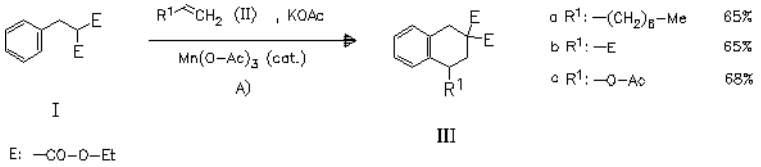
hydrogenated naphthalene derivatives

Q 1010

52 - 149

Metal-Induced Electrochemical Oxidation of Diethyl Benzylmalonates in the Presence of Alkenes and Alkynes. Synthesis of Substituted Tetrahydro- and Dihydronaphthalenes. — The metal salt catalyzed anodic oxidation of (I) in the presence of various alkenes (II) (6 compounds) and alkynes (IV) leads to naphthalene derivatives (III) and (VI), resp., in good yields. Synthetically useful metal salts are Ce(NH4)2(NO3)6 and manganese and cobalt acetates in oxidized or reduced form. In contrast to LiClO4 as supporting electrolyte, KOAc does not inhibit the reaction. The formation of lactones (VII) as by-products in the reaction of alkynes is attributed to the higher oxidation potentials of Co and Ce salts, while the exclusive formation of (VIIc) from (IVc) is explained by an anodic transformation of the intermediately formed (VIc), independent of the metal salt employed. — (BERGAMINI, F.; CITTERIO, A.; GATTI, N.; NICOLINI, M.; SANTI, R.; SEBASTIANO, R.; J. Chem. Res., Synop. (1993) 9, 364-365; Politec. Milano, Dip. Chim., 20131 Milano, Italy; EN)



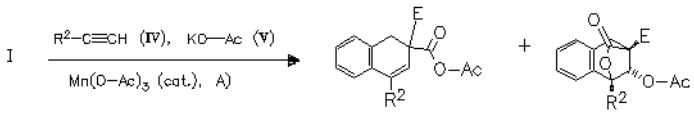
I

III

E: —CO—O—Et

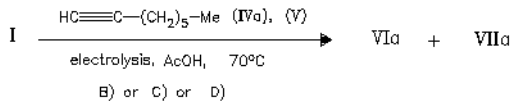
a R^1: —$(CH_2)_6$—Me	65%
b R^1: —E	65%
c R^1: —O—Ac	68%

A): electrolysis, AcOH, 70°C



VI VII

a R^2: —$(CH_2)_5$—Me	70%	–
b R^2: —Tms	70%	–
c R^2: —Ph	0%	77%



B): $Mn(O—Ac)_2$ (cat.)	70%	0%
C): $Co(O—Ac)_2$ (cat.)	40%	20%
D): $Ce(NH_4)_2(NO_3)_6$ (cat.)	64%	5%