

$C_{12}H_{16}NO_3F_3$: C 51.61, H 5.78, N 5.02, O 17.19, F 20.41; found: C 51.69, H 5.92, N 5.24, F 20.38.

(R)-1-Phenylethylammonium (S)-4,4,4-Trifluoro-3-hydroxybutanoate ((S,R)-2): $[\alpha]_D^{20} = -2.3$ ($c = 1.09$, EtOH).

(R)-4,4,4-Trifluoro-3-hydroxybutanoic Acid ((+)-1): M.p. 43.8–44.0°. $[\alpha]_D^{20} = +15.1$ ($c = 7.27$, EtOH). IR (KBr): 3460, 3180, 1735, 1275, 1180, 1130. 1H -NMR (CD_3OD , 300 MHz): 4.40 (ddq, $J_1 = 3.3$, $J_2 = 9.7$, $J(H,F) = 7.1$, $CH(CF_3)$); 2.67 (dd, $J_1 = 16.0$, $J_2 = 3.3$, CH_AH_B); 2.50 (dd, $J_1 = 16.0$, $J_2 = 9.7$, CH_AH_B). ^{13}C -NMR (CD_3OD , 75 MHz): 173.1 (s); 126.7 (q, $J(C,F) = 281$, CF_3); 68.2 (q, $J(C,F) = 32$, CH); 36.6 (CH_2). ^{19}F -NMR (CD_3OD , 282 MHz, Ref. $CFCl_3$): -79.9 (d, $J(H,F) = 7.2$). MS: 159 (54), 141 (84), 120 (49), 89 (86), 71 (95), 69 (42), 43 (100). Anal. calc. for $C_4H_5O_3F_3$: C 30.39, H 3.19, O 30.36, F 36.05; found: C 30.16, H 3.23, F 36.0.

(S)-4,4,4-Trifluoro-3-hydroxybutanoic Acid ((-)-1): $[\alpha]_D^{20} = -15.0$ ($c = 6.58$, EtOH).

Methyl (R)-4,4,4-Trifluoro-3-hydroxybutanoate: $[\alpha]_D^{20} = +21.0$ ($c = 4.78$, $CHCl_3$). IR (film): 3460, 2960, 1730, 1440, 1275, 1170, 1130. 1H -NMR ($CDCl_3$, 300 MHz): 4.51–4.40 (m, $CH(CF_3)$); 3.77 (s, CH_2O); 2.75 (dd, $J_1 = 16.8$, $J_2 = 4.2$, CH_AH_B); 2.68 (dd, $J_1 = 16.8$, $J_2 = 8.2$, CH_AH_B). ^{13}C -NMR ($CDCl_3$, 75 MHz): 171.3 (s); 124.5 (q, $J(C,F) = 281$, CF_3); 67.3 (q, $J(C,F) = 32$, CH); 52.5 (CH_3); 34.7 (CH_2). ^{19}F -NMR ($CDCl_3$, 282

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Groupe d'Analyse Chimique Interdisciplinaire de l'EPFL, GACHI* : 10e Journée d'Analyse: ICP-MS

Raymond Houriet**

The 10th meeting was held on November 28, 1989, sponsored by Perkin-Elmer and VG Instruments. Its topic was the coupling between emission spectroscopy and mass spectrometry: ICP-MS. The state of the art in the method was introduced by Prof. Mermet. Recent developments were described by the manufacturers and applications were presented by users of the method, including contributions of three (out of the four) swiss laboratories equipped with the method. Three articles discuss the limits of detection in emission vs. ICP-MS (E. Poussel and J. M. Mermet), the applications of ICP-MS in an industrial analytical center (H. Baumann)*** and the impact of ICP-MS on studies in groundwater typology (A. Parriaux and J. D. Dubois)***.

* For further information, see *Chimia* **1988**, *42*, 398.

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