

Determination of Inorganic Radio-Iodides in Compounds Labelled with ^{131}I by Thin Layer Chromatography II

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As indicated in a preceding note [1] thin layer chromatography provides a useful tool for recognizing the presence of radioactive iodide, which is frequently found as the main impurity in ^{131}I -labelled organic compounds used for medical purposes.

Radioactive inorganic iodide could be determined quantitatively by thin layer chromatography in the compounds listed in this paper. The chromatograms were developed at room temperature and the activity determination was done with a Radioscanner Packard Model 7200. The spots were also located by autoradiography. In all cases the peaks were well resolved, and 10 cm running of the solvent was enough to achieve good separation.

Details

Monoiodotirosine ^{131}I (MIT ^{131}I) [2, 3]*

Adsorbent: Silicagel Woelm, *Solvent*: n-butyl alcohol: 2N acetic acid (1:1); *Developing time*: 2 hrs; *Detecting reagent*: lead acetate (iodide) and ninhydrin (MIT); R_f MIT: 0.63; R_f iodide: 0.28.

Lipiodol ^{131}I **

Adsorbent: Silicagel Woelm; *Solvent*: petroleum ether (60–80 °C): ethyl ether (2:1); *Developing time*: 30 min; R_f lipiodol: 0.85; R_f iodide = 0.0.

Triiodotironine ^{131}I ($T_3^{131}\text{I}$) [4, 5]***

Adsorbent: Silicagel Woelm; *Solvent*: tert. amyl alcohol: NH_4OH (1:1); *Developing time*: 5 hrs; *Detecting reagent*: lead acetate (iodide) and ninhydrin (T_3); $R_f T_3^{131}\text{I}$: 0.46; R_f iodide: 0.20. The same solvent can be used for detecting iodide in a mixture of $T_4^{131}\text{I}$ and $T_3^{131}\text{I}$, the R_f values being $R_f T_3 = 0.46$; $R_f T_4 = 0.35$; and R_f iodide = 0.20.

Tetraiodotironine ^{131}I ($T_4^{131}\text{I}$) [4, 5]****

Adsorbent: Silicagel Woelm; *Solvent*: isopropyl alcohol: ethyl acetate: acetone: NH_4OH (35; 30:25:20);

Developing time: 90 min; *Detecting reagent*: lead acetate (iodide) and ninhydrin (T_4); R_f iodide 0.54; $R_f T_4 = 0.28$.

Hipaque ^{131}I [6]*****

Adsorbent: Silicagel Woelm; *Solvent*: 0.25 M sodium citrate; *Developing time*: 50 min; R_f iodide = 0.90; R_f hipaque = 0.55.

Bromosulphtalein ^{131}I

Adsorbent: Silicagel Woelm; *Solvent*: 2% Ammonium citrate $p_{\text{H}} 7$ (with NH_4OH); *Developing time*: 30 min; R_f iodide = 0.71; R_f Bromosulphtalein = 0.28.

Diiodofluorescein ^{131}I

Adsorbent: Silicagel with 2% polyvinyl alcohol; *Solvent*: butyl acetate: acetic acid (9:1); *Developing time*: 1 hr; R_f diiodofluorescein = 0.95; R_f iodide = 0.0.

* The same method may be used for diiodotirosine ^{131}I (DIT ^{131}I).

** The same method may be used for oleic acid ^{131}I , Triolein ^{131}I .

*** The same method may be used for tetraiodotironine ^{131}I ($T_4^{131}\text{I}$).

**** The same method may be used for triiodotironine ^{131}I ($T_3^{131}\text{I}$).

***** The same conditions hold for diprocon ^{131}I , and sodium iodotalamate ^{131}I .

1. A. E. A. MITTA, L. L. CAMIN and M. L. P. DE TROPAREVSKY, *Radiochim. Acta* 6, 111–112 (1966).

2. A. MASSAGLIA and N. ROSA, *J. Chromatogr.* 14, 516 (1964).

3. A. E. A. MITTA and G. B. DE SALAS, *An. Asoc. Quím. Argent.* (in press).

4. G. B. DE SALAS and A. E. A. MITTA, *An. Asoc. Quím. Argent.* (in press).

5. *Radioactive Pharmaceuticals*, U. S. Atomic Energy Commission, Symposium Oak Ridge Institute of Nuclear Studies (1966).

6. A. E. A. MITTA, L. L. CAMIN and H. E. HUALA, *J. Label. Compounds* III, N° 27, 98 (1967).