

Absorption of Various Compounds to PVA Sponge

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We found that semiformalized polyvinyl-alcohol sponge (PVF) absorbs some compounds e.g. triiodothyronine, thyroxine, rose bengal etc., and is able to be put to practical use for $T_3^{131}I$ test. But the principle of absorption and another application of PVF are not obvious yet, and so we have checked the rate of absorption on PVF for many compounds under different conditions e.g. in saline or in saline and serum by using 65% and 72% semiformalized PVA sponge of 0.9 cm diameter. The compounds we have used are thyroxine ^{131}I , triiodothyronine ^{131}I , rose bengal ^{131}I , diiodotyrosine ^{131}I , sodium o-hippurate ^{131}I , human serum albumin ^{131}I , human serum γ -globulin and so on. For another compounds, too, we are going to check the rates of absorption on PVF in near future.

For instance, the rate of absorption on PVF in pool serum are as follows;

(1)

- a) thyroxine ^{131}I in saline 1 ml+serum 1 ml +PVF (2 cm long)
- b) thyroxine ^{131}I in saline 2 ml+PVF (2 cm long)

PVF	Incubation time (min.)	absorption rate of $T_4^{131}I$ on PVF (%)	
		a	b
65%	20	2	2
	60	2	2
72%	20	2	2
	60	2	2

(2) triiodothyronine ^{131}I

- a) $T_3^{131}I$ saline 1 ml+serum 1 ml+PVF (2 cm)
- b) $T_3^{131}I$ saline 2 ml+PVF (2 cm)

PVF	Incubation time (min.)	absorption rate of $T_3^{131}I$ on PVF at 20°C (%)	
		a	b
65%	20	20	90
	60	20	90
72%	20	15	90
	60	15	90

An Improved Technique for the Radioactivity Measurement of Blood Samples

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An improved technique of low level beta-counting was applied to measurement of RI concentration in blood. The method provides a lower detection limit with a good accuracy in the radioactivity measurement, thereby allowing the much smaller amount of both RI injection and the blood sample.

The instruments employed are a coin-

cidence type low background β -ray scintillation spectrometer for β -emitting samples. The β -ray energy spectrum taken by the instrument prevents the measurement from the unwanted error caused by the radioactive impurities in the blood sample.

The principle of the β -ray scintillation spectrometer is as follows. The detector