Leech Method of Blood Analysis; A New Micro Method.

4. Determination of Blood Sodium.*

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The very convenient leech method for the blood analysis of cholesterol¹⁾ and potassium²⁾ has already been reported from our pediatric laboratory. Now I want to study the applicability of the leech method to sodium determination.

The Leech Method for Blood Sodium.

The colorimetric blood sodium method of Yoshimatsu³⁾ was used. Table I gives a comparison of figures between blood samples obtained directly from a rabbit's vein, and those obtained through puncture from leeches' bodies. Normal rabbits were used. The average deviation is within $\pm 3.3\%$.

A comparison of sodium figures found in the blood of pathological human cases between the direct and the indirect (leech) method is shown in Table II.

As will be seen from Table II the figures obtained by the direct and the indirect method coincide, also in human cases, with each other within an average difference of $\pm 3\%$.

Conclusions.

Using the leech method above described blood sodium may be de-

* 17th Report on Micro Method.

1) T. Sato, Tohoku Journ. Exp. Med., 1932, 19, 162.

2) Y. Uga, Tohoku Journ. Exp. Med., 1932, 19, 165.

3) S. Yoshimatsu, Tohoku Journ. Exp. Med., 1927, 8, 496.

terminated indirectly. The figures for blood sodium between the direct method and the indirect (leech) method coincide with each other within an average deviation of $\pm 3.3\%$.

TABLE I.

Analysis of sodium in blood samples directly (from auricular vein) and indirectly through leech's body obtained from the same rabbits.

No. of rabbits	Body weight in kilos	Sodium figures of normal rabbit's blood obtained directly from its auricular vein. Na...mgrms %	Sodium figures of the same rabbit's blood obtained indirectly from the body of leech. Na...mgrms %	Difference (%)
No. 1	1.90	190.5	191	+0.3
No. 2	1.77	222	218.5	-2.1
No. 3	2.15	180	174	-3.4
No. 4	2.32	191.5	181.5	-5.2
No. 5	2.08	156	152	-2.6
No. 6	2.64	206.5	204.5	-1.0
No. 7	2.02	183	192	+4.9
No. 8	1.79	202.5	208	+3.2
No. 9	2.54	249	241	-3.2
No. 10	1.99	227	214.5	-5.5
No. 11	2.80	222	217	-2.3
No. 12	2.24	180	192	+6.7
No. 13	2.80	176.5	167	-5.4
No. 14	2.07	237.5	226	-4.8
No. 15	1.81	194	194.5	+0.3
No. 16	2.69	163	157	-3.7
No. 17	2.23	156.5	161	-2.9
No. 18	2.05	236	235.5	-0.2
No. 19	2.07	153	153.5	+0.3
No. 20	1.95	180.5	165	-8.6
Average				± 3.3

TABLE II.

Sodium content of blood in human cases (Na...mgrms. %).

No.	Age (years)	Sex	Diagnosis	Blood obtained directly	Blood obtained indirectly from the body of leech	Difference
1	15	♂	Polyserositis tuberculosa	171 mgrms %	179 mgrms %	+4.7%
2	13	♂	Brain tumor	162 mgrms %	163 mgrms %	+0.6%
3	17	♂	Dystrophia adiposogenitalis	147 mgrms %	152 mgrms %	+3.4%
4	12	♀	Hepatolienal disease with jaundice	187 mgrms %	179 mgrms %	-4.3%
5	11	♂	Hepatitis luetica	198 mgrms %	195 mgrms %	-1.5%
				Average		$\pm 2.9\%$