

## THE EFFECT OF GLUCOSE ON THE ALLOXAN CONTENT OF THE BLOOD

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A research into the problem whether alloxan is involved in human diabetes and human physiology<sup>2, 4</sup> made it important to us to repeat partly the investigations of SCHIØLER<sup>5</sup>. This author reported that a rise to at least fifty-fold of the alloxan content of the blood occurred after the administration of glucose or some of its metabolites.

In our experiments male and female rats of 160–200 g body weight were used. They were fasted for 36–48 hours prior to the experiment. In accordance with the description of SCHIØLER 1 g glucose/kg was administered orally. After 20–40 minutes 1 ml blood was taken from the abdominal aorta for the determination of the alloxan content. The precipitation of blood proteins was carried out within 45 seconds (to avoid decomposition of the alloxan) by the HERBERT AND BOURNE method, modified by ARCHIBALD<sup>1</sup>. After centrifugation 68.2  $\mu$ g (in 0.5 ml) *o*-phenylenediamine and water to a final volume of 20 ml were added and the mixture was stored in darkness for 24 hours<sup>3</sup>. The fluorometric determination was carried out with a Lumetron fluorometer (model 402 E.F., primary vitamin A filter, standard solution of 5  $\mu$ g alloxan per 20 ml, zero setting against redistilled water).

No increase of the fluorescence of the blood was found after treating the animals with glucose (see Table I). This result, therefore, is at variance with that obtained by SCHIØLER<sup>5</sup>. The average value for the alloxan content of the blood proved to be three to four times higher than that reported. However, *o*-phenylenediamine itself causes a slight fluorescence which, for technical reasons, was not taken in consideration. The great scattering of the data is caused by the poor sensitivity of the method in the areas where the fluorescence of the sample is much less than that of the standard solution.

### SUMMARY

The rise of the alloxan content of the blood after administration of glucose, as reported by SCHIØLER, could not be confirmed.

### RÉSUMÉ

L'accroissement de l'alloxane sanguin après ingestion de glucose, comme décrit par SCHIØLER, n'a pas été confirmé.

\* From a personal communication by Dr SCHIØLER it appeared possible that minor differences in procedure might be partly responsible for the discrepancy between his and our results.

*References p. 291.*

TABLE I

Rat No.	Blood Alloxan without glucose administration in g/ml	Rat No.	Blood Alloxan after glucose administration in g/ml
5	0.5	9	0.0
6	0.5	10	0.9
7	0.9	11	0.5
8	1.4	12	1.5
17	1.1	20	1.0
18	2.4	21	0.7
19	2.0	22	2.1
		23	2.3
		24	3.9
43	0.1	45	0.1
44	1.1	46	0.6
		47	1.0
75	1.4	76	0.4
		77	1.3
		78	0.8
82	0.9	83	1.5
		84	1.1
		85	1.3
90	1.5	91	0.8
		92	1.3
Average value	1.15		1.10

## ZUSAMMENFASSUNG

Die Erhöhung des Alloxangehaltes des Blutes nach Verabreichung von Glukose, wie von SCHIÖLER beschrieben, konnte nicht bestätigt werden.

## REFERENCES

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- <sup>5</sup> P. SCHIÖLER, *Biochim. Biophys. Acta*, 2 (1948) 260.

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