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Brief Communication

THE DIAGNOSTIC VALUE OF PLASMA SELENIUM ESTIMATIONS ON BLOOD SAMPLES COLLECTED IN CONJUNCTION WITH EXSANGUINATION OF SWINE*

It has been shown that the validity of certain clinical-biochemical blood values may change immediately post mortem (*Jönsson & Pehrson* 1968, *Simesen & Storm* 1973). The aim of this investigation was to establish whether selenium estimations on blood samples collected at slaughter are of diagnostic value.

Material and methods

The material consisted of preslaughter blood samples from 22 experimental swine with plasma selenium values varying from 0.015 to 0.105 p.p.m. (wet weight) (Table 1) and samples from the same animals taken in conjunction with the exsanguination following electric stunning. All samples were coded and unidentifiable by the person who performed the analyses.

The selenium content was estimated according to the fluorometric procedure described by *Olson* (1969).

Results and discussion

The results of all analyses of the samples are shown in Table 1. The av. value for plasma selenium content in the blood taken before slaughter was 0.059 and 0.065 in the plasma sample taken in conjunction with exsanguination. When comparing (paired t-test) the level in individual swine before and at exsanguination a significant difference was found ($P < 0.02$). The two sets of data are linearly correlated, $y = 0.0049 + 1.0241\ x$, where x and y are the pre- and postslaughter values, respectively.

Jönsson & Pehrson have pointed out that samples collected at exsanguination generally appear to be subject to greater errors than can be explained by the errors in the analytical methods.

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Table 1. Comparison of plasma Se values before slaughter and during exsanguination.

Animal no.	Date for plasma sampling	Se p.p.m.	Date for slaughter	Se p.p.m.
430	31/1	0.070	5/2	0.077
428	31/1	0.070	5/2	0.081
431	11/2	0.054	12/2	0.077
427	25/2	0.057	26/2	0.065
423	18/2	0.021	19/2	0.027
420	4/3	0.020	5/3	0.024
418	25/2	0.025	26/2	0.014
425	18/2	0.028	19/2	0.026
431	11/2	0.087	12/2	0.078
427	25/2	0.086	26/2	0.086
423	18/2	0.015	19/2	0.021
420	4/3	0.017	5/3	0.025
418	25/2	0.015	26/2	0.023
425	18/2	0.021	19/2	0.022
44	15/9	0.082	16/9	0.095
46	15/9	0.094	16/9	0.100
48	15/9	0.103	16/9	0.098
50	22/9	0.077	23/9	0.099
126	22/9	0.092	23/9	0.107
127	29/9	0.088	30/9	0.119
128	29/9	0.105	30/9	0.094
132	29/9	0.069	30/9	0.076
		av. 0.059		av. 0.065

An increase in plasma selenium content at exsanguination has — as far as we know — not been reported before. The increase is so great, however, (av. 10 %) that under certain circumstances it could invalidate the diagnostic value of selenium determination in plasma collected in conjunction with slaughter. Therefore the preslaughter values should be calculated using the equation given above. Generally we have found plasma or serum selenium estimations to be a very responsive indicator of the selenium status of an animal.

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