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Brief Communication

THE INFLUENCE OF BLOOD-SAMPLING TECHNIQUE ON LACTIC DEHYDROGENASE (LDH) IN PIG PLASMA

Blood-sampling from animals can be done in several ways without interfering with the results from analysis of many substances in the blood. For such labile substances as plasma enzymes, it should be realised, however, that certain methods of sampling can give rise to false results. By collection from animals during slaughtering there is the risk that such conditions as excitement and anaesthesia interfere with the results of the blood-analysis.

During investigation of LDH in pig plasma, involving estimation of the normal LDH activity and the isoenzyme-distribution, blood was taken by puncturing the V. cava cran. Isoenzymes were demonstrated by using the "Agar Gel Electrophoresis" as described by *Wieme* (1). Five bands (isoenzymes) have been revealed in normal pig plasma. The isoenzymes are named: LD_1 — LD_2 — LD_3 — LD_4 — LD_5, in the order from the anode to the cathode.

The following mean values were found:
LDH activity: 140 i.u./l, s ± 31 (2).
Percentage distribution of isoenzymes: LD_1: 48.3 ± 5.3;
LD_2: 32.2 ± 3.1; LD_3: 13.3 ± 2.8; LD_4: 5.2 ± 2.1; LD_5: 1.2 ± 0.8;

By comparing our results with others (3, 4) some discrepancies have been found. These workers present diagrams of the isoenzyme distribution in pig serum, which show a higher relative activity in bands 4 and 5 than found by us.

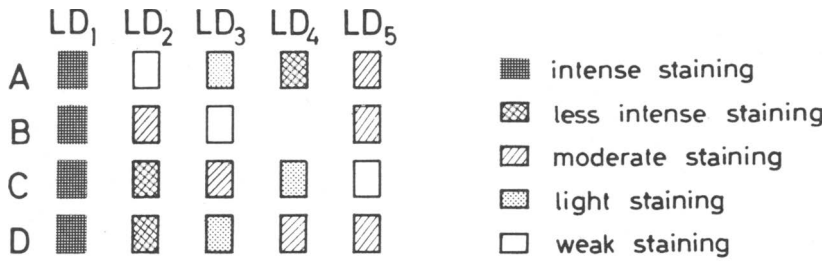

Figure 1. Diagrammatic presentation of normal serum-zymograms. Intensity of staining reflects enzyme-activity.

The zymograms A and B presented by (3) and (4) respectively are clearly different from the one, C, found by us. Trying to elucidate the discrepancy, the following experiment was carried out. Ten normal pigs were bleeded (V. cava cran.) at the farm (I), just before killing at the slaughterhouse (during anaesthesia) (II), and finally from the wound (III). All the samples were analysed for LDH activity and isoenzyme-distribution.

The results are given in the following table.

	LDH activity i.u./l m.±s	Percentage distribution of LDH-isoenzymes (m.±s)				
		LD_1	LD_2	LD_3	LD_4	LD_5
I	137± 8	49.5±4.1	33.8±3.0	11.5±2.3	5.0±1.8	0.2±0.1
II	247±11	40.6±7.1	27.5±2.9	11.8±3.2	7.7±1.9	12.5±2.8
III	236±33	40.3±3.4	29.4±5.1	13.3±3.2	7.2±2.3	9.9±2.1

The mean for gr. I is close to our previously found mean value for LDH activity in pig plasma, whereas the figures for both II and III are 70—80 % higher. The isoenzyme-distribution show a clear tendency towards an increased activity in the bands 4 and 5 (see zymogram D also) i.e. a picture which is more like the pictures presented by the cited workers. In (3) blood was taken from slaughtered pigs. In (4) no information on the blood collection is given, comparison is therefore impossible.

The above mentioned findings will be followed by a more detailed investigation, but it has already been shown, how important it is to investigate the applied technique before results are presented.

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REFERENCES

1. *Wieme, R. J.:* Agar Gel Electrophoresis. Elsevier, Amsterdam 1965.
2. *Hyldgaard-Jensen, J.:* Mælkesyredehydrogenase hos svin. I. Mælkesyredehydrogenase (LDH) i blodplasma. Kgl. Vet.- og Landbohøjsk., Inst. Sterilitetsforskn. Aarsberetn. 1966, 117—125. København.

3. *Karlsson, B. & B. Kjellberg:* Changes in the lactic dehydrogenase isoenzyme pattern of porcine milk throughout the lactation period. Milk and Dairy Research, Rep. no. 73, Alnarp, Sweden, 1966.

4. *Fieldhouse, B. & C. J. Masters:* Developmental redistribution of porcine lactate dehydrogenase. Biochim. biophys. Acta 1966, *118*, 538—548.