

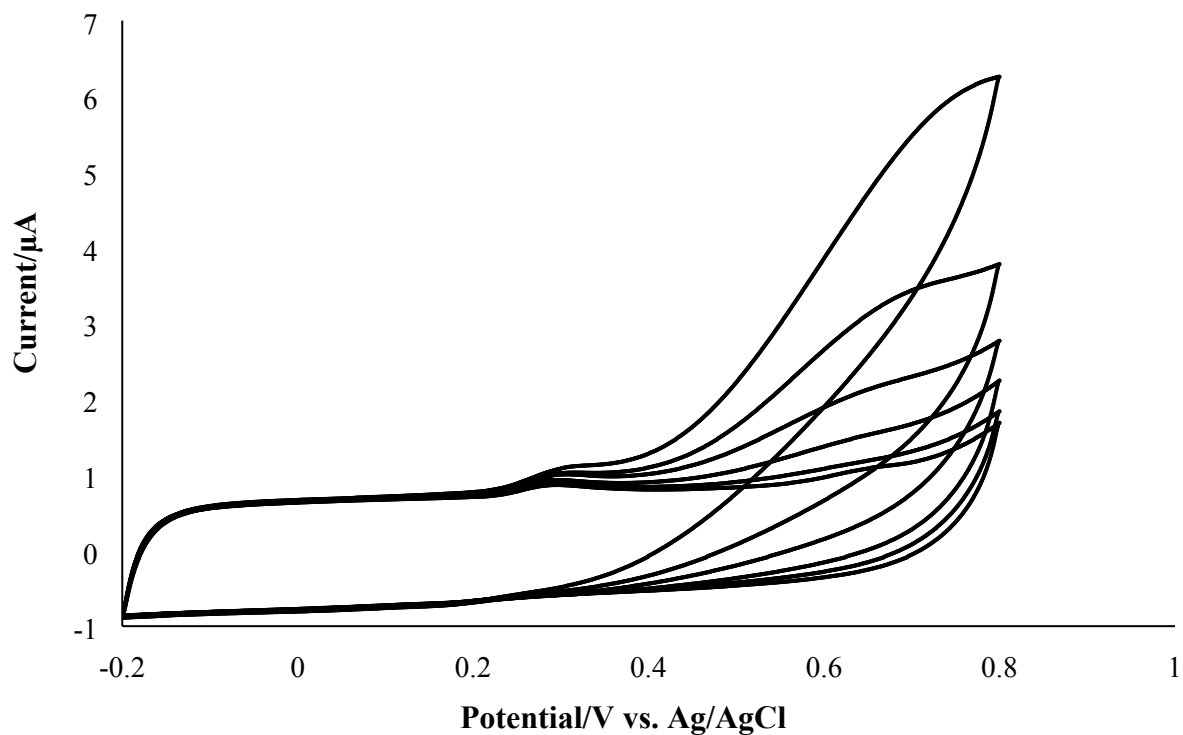
Supplementary Information

Electrochemical Assay of Sorbitol Dehydrogenase – a New Milk Biomarker for Confirmation of Pregnancy in Dairy Cattle

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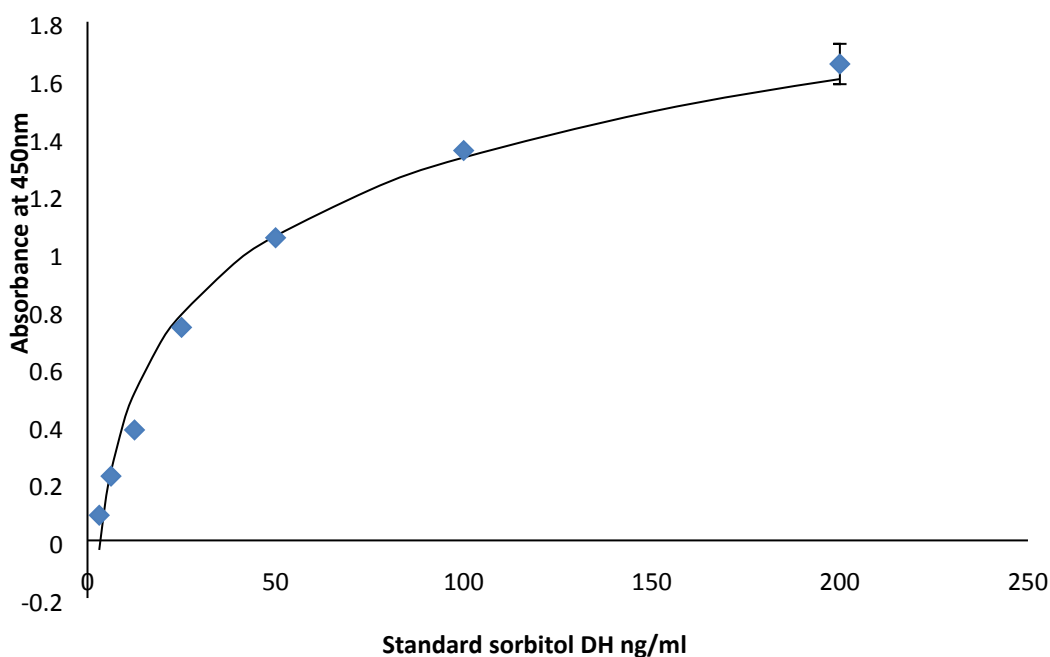
		1	2	3	4	5	6	7	8	9	10	11	12
200 ng/ml	A	S1	S1	S1	2766	2766	2766	2766	1981	1981	1981	1981	1783
100 ng/ml	B	S2	S2	S2	2431	2431	2431	2431	2201	2201	2201	2201	1783
50 ng/ml	C	S3	S3	S3	2424	2424	2424	2424	2771	2771	2771	2771	1783
25 ng/ml	D	S4	S4	S4	2423	2423	2423	2423	2802	2802	2802	2802	1783
12.5 ng/ml	E	S5	S5	S5	2374	2374	2374	2374	2839	2839	2839	2839	2734
6.25 ng/ml	F	S6	S6	S6	1593	1593	1593	1593	2255	2255	2255	2255	2734
3.12 ng/ml	G	S7	S7	S7	2287	2287	2287	2287	2365	2365	2365	2365	2734
0 ng/ml	H	C	C	C	2522	2522	2522	2522	2795	2795	2795	2795	2734
		Not pregnant											
		Pregnant											
		Kit standard											

SI(1) The SORDH ELISA kit steps were performed according to the kit instructions with optical density read at 450 nm. The numbers in Columns 4-12 relate to individual animal codes with colour coded pregnant and non-pregnant samples.



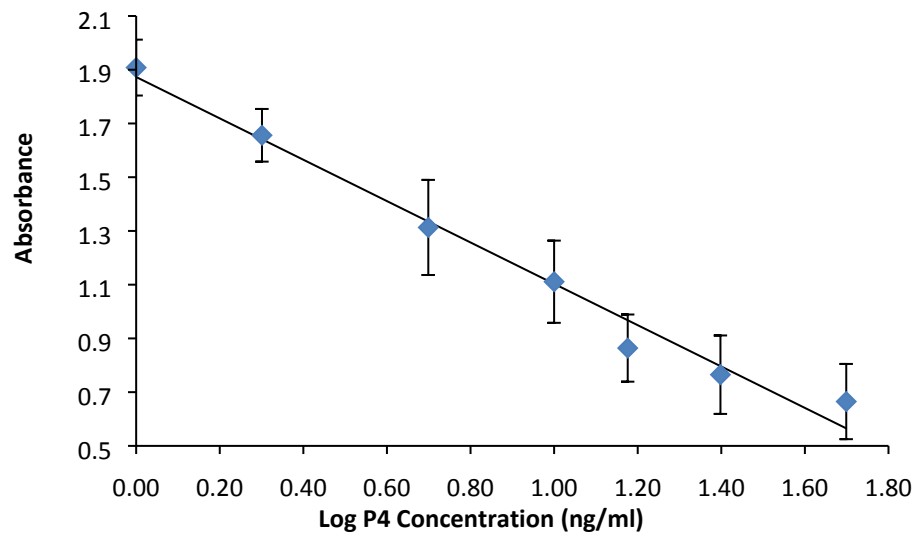
SI(2) Voltammetric study at SPCE/PEDOT in Commercial Low-Fat milk (pH 6.7) at room temperature as background (A) and response to increasing NADH concentrations from: 0.625 mM (B); 1.25 mM (C); 2.5 mM (D); 5 mM (E); 10 mM (F), at scan rate 0.1 V/s vs Ag/AgCl.

	1	2	3	4	5	6	7	8	9	10	11	12
A	1.733	1.712	1.515	0.556	0.519	0.226	0.258	0.419	0.414	0.104	0.288	0.367
B	1.321	1.341	1.397	0.392	0.355	0.159	0.249	0.215	0.315	0.15	0.144	0.465
C	1.046	0.941	1.164	0.468	0.559	0.215	0.211	0.368	0.38	0.217	0.159	0.196
D	0.659	0.6579	0.901	0.389	0.384	0.18	0.204	0.336	0.368	0.107	0.197	0.156
E	0.348	0.34	0.462	0.518	0.48	0.057	0.086	0.499	0.432	0.167	0.103	0.266
F	0.177	0.28	0.212	0.271	0.257	0.383	0.462	0.365	0.386	0.137	0.199	0.371
G	0.06	0.081	0.121	0.455	0.31	0.121	0.112	0.438	0.318	0.086	0.186	0.177
H	0.13	0.124	0.111	0.366	0.31	0.096	0.127	0.271	0.447	0.139	0.144	0.161

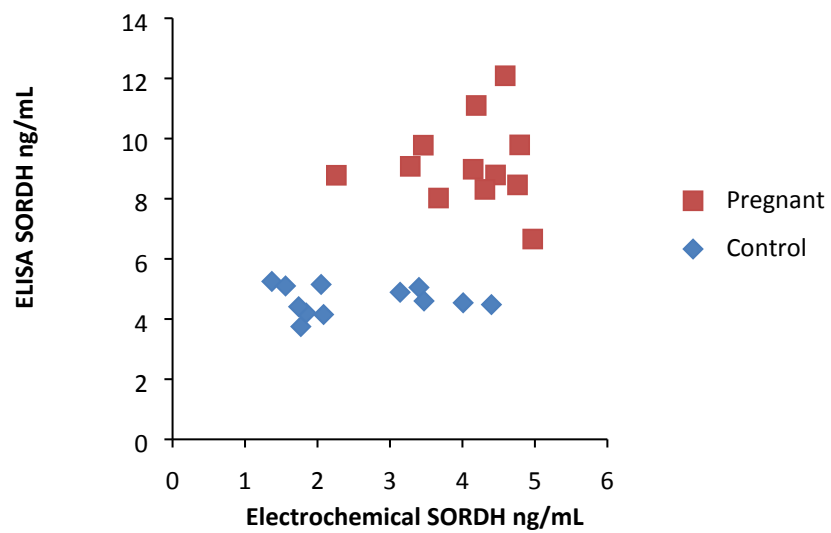


SI(3) SORDH ELISA plate microwell layout absorbance values and corresponding calibration curve SORDH ELISA plate results after stop solution, reading absorbance at (450 nm). Log of concentration/absorbance ($R^2=0.98$) $n=3$.

Optical ELISA Calibration Data



SI(4) Progesterone optical assay calibration data for competitive format (developed and optimised in house).



SI(5) Electrochemical vs .optical ELISA SORDH response for breeding and control samples.