

WATER-SOLUBLE ANTIOXIDANT IN EWES DURING THEIR LATE PREGNANCY

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Objective: The metabolism of ewes pregnant with several foetuses is often severely stressed during the end of the pregnancy, which may cause pregnancy toxemia. These disturbances effect primarily the energy metabolism, but also parameters such as albumin and bilirubin, which again influence the antioxidative state. The antioxidative state also depends from the supply with antioxidants by food-stuffs. Our project aimed at checking the antioxidative state in Merino-meat-sheep and Black-head-sheep pregnant with one or two foetuses during their late pregnancy compared with other metabolic parameters.

Experimental design: Sonographically, 4 healthy Merino-meat-sheep pregnant with one (MFS 1) and pregnant with two (MFS2) foetuses as well as 4 twin pregnant Black-head-sheep with (S K2) were selected. Weekly blood samples (V. jugularis) were taken during the last five weeks ante partum (w. a. p.) as well as during the second week post partum (w. p. p.). The oxidative state was determined as a trolox equivalent antioxidative capacity (TEAC). Hitachi 705 as well as Technicon 1 were used to metabolic and haematological analyses.

Results: Ante and post partum, TEAC concentrations were lowest in MFS1 compared with MFS2 as well as S K2 ($p < 0.05$). Tendentially, the concentration decreased in all groups 3 to 1 w. a. p. The TEAC differences between the groups, can be explain as a result of differing food intake. The following table shows the quartiles values (median, first -, third quartiles) of different parameters:

para- meters	race	weeks post partum			
		-5	-3	-1	2
TEA	MFS 1	180;	171; 155; 188	179; 175; 184	175;
C _μ mol/l	MFS 2	193; 189; 197	194; 178; 198	184; 178; 185	214; 194; 215
	S K 2	180; 170; 187	190; 180; 201	190 ;185; 200	184; 166; 201
Albu- mine g/l	MFS 1	36.7; 35.8; 37.5	40.5; 40.0; 41.6	40.9; 40.2; 42.4	43.6; 41.5; 44.8
	MFS 2	38.8; 38.8; 42.7	38.9; 35.6; 39.4	39.5; 36.5; 44.6	38.9; 34.9; 40.7
	S K 2	40.2; 37.0; 40.2	41.7; 36.6; 43.2	40.3; 38.5; 41.3	41.2; 39.2; 43.3
Biliru- bine _μ mol/l	MFS 1	2.7; 2.2; 3.1	2.8; 2.6; 3.3	2.0; 2.4; 3.4	3.8; 2.9; 4.2
	MFS 2	3.1; 2.4; 3.2	3.5; 3.1; 4.3	3.8; 3.1; 4.8	3.9; 2.6; 5.9
	S K 2	2.3; 2.1; 2.7	2.6; 1.3 ;3.2	2.2; 2.0; 2.7	2.4; 1.8; 3.0

Albumin (0.47) and bilirubin (0.34) correlated significantly with TEAC, other parameters, such as insuline (-0.25), FFA (0.22), haemoglobin (0.20), total protein (0.06), glucose (0.05), BHB (0.02), monocytes (-0.16) or leukocytes (0.03), did not.

Conclusions: During late pregnancy different TEAC concentrations in single and twin pregnant ewes occurred, indicating of the antioxidative state. Their cause may be related to the food intake. Metabolic influences (albumin : bilirubin) have in part opposite effects.