BLOOD GROUPS AND PROTEINS POLYMORPHISM IN SENEGALESE SHEEPS

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SUMMARY

Authors analyse blood polymorohism of the 3 native breeds in Senegal.It appears some differences in blood systems. The difference in blood proteins frequencies is not significant.

Keywords : Blood proteins, Transferrins, haemoglobin, sheeps Senegal.

INTRODUCTION

In Senegal, morphological description and zootechnical comparison have been used since to assess diversity in small ruminants breeds.

As we knows, in domestic animals, blood groups are under the control of many systems, at least 10 in sheeps and 6 in goats (NGUYEN T C, 1979).

Most of these systems are polymorphic (many alleles on one locus). At the same time some loci are coding for antigenic groups named phenogroups.

The complexity of blood groups and there proteins polymorphism can be used to characterize intra and inter breed diversity.

The present study aimed to analyse blood polymorphism in Senegalese sheeps.

MATERIALS AND METHODS

Animals and environnement

Three races Peul, Touabire and Djallonke have been used. There morphobiometric description has been made (Denis , 1975 ; Fall M, 1989). Zootechnical performances are known (Fall A ***et al,*** 1983 ; SOW ***et al,*** 1987).

Peul and Touabire sheeps are sahelian races living in the northern part of Senegalese semi-arid zone, Djallonke sheeps are from the southern part in subhumid zone where trypanosomiasis are found.

Methods

Blood samples are taken from 100 individuals for each sheep races. 5 ml of blood are taken into tube containing sodium citrate.

Blood groups were determinated by agglutination and hemolysis. Blood proteins were typed by electrphoresis.

RESULTS AND DISCUSSION

Blood groups systems

Six (6) blood systems (A, B, C, D, M and R) have been found in the three breeds. These systems show polymorphism with many alleles (phenogroups). The polymorphism is more significant in sahelian breeds. The significant difference from the Djallonke and Peul or

Touabire are on alleles aB, Ca, Da, Ma, and R. Between Peul and Touabire. Difference is only on allele aB.

Blood proteins

transferrin types

Alleles found in Senegalese sheeps are: TfA, TfB, TfG, TfC and TfD.
TfG is not found in Djallonke sheeps. TfD allele is more frequent in Djallonke than in Peul and Touabire.
It seems that D allele have a selective advantage in infested areas because we find it in trypanotolerant cattle.

Haemoglobin types

Peul and Djallonke sheeps show only a type B haemoglobine (fixed allele), but the Touabire sheep shows residual variation in this locus (A frequency = 0.015).

Table 1: Allelic frequencies of blood systems in Senegalese sheeps

Systems	« Alleles »	Djallonke (99)	Peul-Peul (99)	Touabire (100)
A	Aa	0.526	**0.550**	**0.499**
	Ab	0.087	0.035	0.068
	aB	0.025a	0.001b	0.021a
	A-	0.362	0.414	0.412
B	Bb	0.030	0.181	0.161
	bd	0.005	0.027	0.108
	Bbde		0.022	
	bdi.		0.023	
	fi	0.020	0.051	0.148
	d	0.005	0.007	0.027
	di.			0.046
	e	0.005	0.014	0.013
	ei			0.038
	i			
	B-	0.025 0.910	**0.079** 0.599	0.200 0.439
c	Ca	0.005a	0.045b	0.071b
	b	0.323	**0.349**	0.337
	ab	0.005a	0.056b	0.063b
	C-	0.663	0.550	**0.529**
D	Da	0.529a	0.341b	0.471ab
	D-	0.471	**0.659**	**0.529**
M	Ma	0.326	0.440	0.408
	M-	0674	0.560	**0.592**
R	R	0.326	0.440	0.408
	0	0.674	0.560	**0.592**

Table 2: Transferrin and haemoglobin types in the 3 breeds

Blood Proteins	Dj allonke sheeps	Peul sheeps	Touabire sheeps
Transferrins			
TfA	0.276	0.428	0.308
TfG		0.04 1	0.030
TfB	0.005	0.072	0.142
TfC	0.110	0.139	0.120
TfD	0.609a	0.320b	0.394b
Haemoglobin			
A	**0.00**	**0.00**	0.015
B	1 .00	1 .00	0.985

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