

# THE GENETIC CHARACTERISTICS OF THE PRESERVED LITHUANIAN HORSE BREED ŽEMAITUKAI

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## INTRODUCTION

The Žemaitukai is a Lithuanian horse breed that is one of the oldest in Europe. The breed is recognized as internationally watched. The Žemaitukai is a universal pony type horse used for work, driving, tourism, children pastime, hippotherapy and sports. Their height at withers is from 128 to 142 cm, chest girth from 154 to 187 cm, cannon bone girth from 17 to 19 cm and weight from 360 to 420 kg.

The preservation of the old and valuable Žemaitukai breed is a very responsible process and, therefore, beside strict selection, scientific research is also required to indicate the effects of blood immigration on the unique nature of the Žemaitukai.

## RESULTS AND DISCUSSION

### Allele frequencies of blood group markers in Žemaitukai breed

Locus	Allele	ERELIS line (n=98)	ASTURAS line (n=46)	New line (n=27)
EAA	ad	0.31**	0.37	0.46**
	bc	0.14	0.15	0.07
	b	0.12	0.06	0.11
	c	0.05	0.06	0.05
EAD	dghm	0.34*	0.42*	0.33
	cgm	0.12	0.09	0.07
	dk	0.04	0.03	0.07
	adl	0.19	0.19	0.16
	dl	0.06	–	–
	bcm	0.05	0.03	0.02
	dkl	0.01**	–	0.07**
EAQ	abc	–	0.01	–
	bc	0.04	0.03	0.02
	c	0.31*	0.39*	0.29
	b	0.01*	0.01	0.05*
	ac	–	–	0.01

\* $P < 0.05$ ; \*\* $P < 0.001$ .

## MATERIAL AND METHODS

The blood in Žemaitukai horses was analysed at the Blood Typing Laboratory in the LIAS of LVA. The blood samples were collected from 171 horses. Standard blood typing methods were used. Blood groups were classified according to seven genetic systems: EAA, EAC, EAD, EAK, EAP, EAQ, EAU and five blood protein polymorphic system – transferrin (Tf), postalbumin (Xk), protein binding vitamin D (Gc), albumin (Al) and esterase (Es).

## CONCLUSION

Genetic analysis of the lines indicated differences in blood protein polymorphism, i.e. alleles AB and BB in albumin system and alleles IS in Es system were found to be typical of only new lines.

### Genotype frequencies of serum protein markers in Žemaitukai breed

Locus	Genotype	ERELIS line (n=98)	ASTURAS line (n=46)	New line (n=27)
Al	AA	0.61*	0.71	0.37*
	AB	0.39	0.28	0.52
	BB	–	–	0.11
Es	FF	0.02	0.17	–
	FI	0.36**	0.5	0.26
	II	0.37	0.02**	0.40
	IS	0.17	0.08	0.25
	FS	0.05**	0.21**	0.03
	SS	0.03	–	0.03
Tf	DD	0.20	0.11	0.14
	FF	0.13	0.19	0.18
	DF	0.38	0.34	0.33
	DO	0.08*	0.17*	0.14
	DR	0.03	0.04	–
	FO	0.09	0.04	0.14
	FR	0.04	0.06	0.03
	OO	0.01	–	–
	RR	0.01	–	–
	OR	0.01	0.02	–

\* $P < 0.05$ ; \*\* $P < 0.001$ .

