



Investigation of the genetic diversity of the sheep in the city of Ilam

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ABSTRACT

In the area genetics and correction race livestock, inform from structure genetic one help people great to design programs eugenics and from all more important protection one store genetic is. Accordingly, the sheep population kurdish city of ilam using four microsatellite markers named valerie (umn0406 _umn3008 _umn2706 _umn0301) was evaluated in terms of genetic diversity. First of lamb from the flock of 216 blood samples were collected in the city of ilam and then dna the samples were extracted. Reactions pcr well done. The results showed that all loci were quite polymorphic. Test hardy weinberg to way test square kai sign the that some compounds different place populated at state of lack the balance the having d. Lowest and most alleles, respectively, in place of umn3008 _umn2706 the maximum position of the flock is lori. The maximum expected heterozygosity in the population composition - position for position of umn0406 _umn3008 _umn2706 umn0301 by 75.5/0, 8/0, 74/0, 65/0 respectively. In total, we can conclude that the population sheep examined in this study with regard to the position studied, mostly from lori was almost a small percentage kurdish descent sheep breed is in the city of ilam.

Keywords: *genetics, origin of genes, of the sheep, the city of Ilam*

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INTRODUCTION

At years lately markers genetically to means able the trust and appropriate direction studies genetics and diversity populations conversion have become. Micro satellite to the subject best marker direction determination variety genetically species animal introduction be. On basis other reviews record by fao , 6 percent total determination space genetically with use from micro satellite performance was is . Also at research that by fao at relation with selection marker direction studies variety genetically performance by, reports stating from this that 70 percent researchers marker ssr and selection have (fao, 2004). Markers autosomal only 30 percent from total variety genetically races different and they can sign day bannasch et al., 2005). But use from markers chromosomes 12 year past to the face extensive at studies corrective and philo geographic increase found theat 2006. (meadows et al., in iran, more than 50 million sheep, there are 27 races and ecotypes (zamani et al., 2013) which have been calculated in maintaining the genetic diversity of native breeds attempt.

Protection of genetic resources should be based on a deep knowledge of specific breeds, so trying to identify the genetic characteristics of local breeds is very important (shojaei et al., 2010).

Animals male and a matter role the same at structure the population do not that this lack symmetry among gender on strategy racial the impact lays. (greenwood, 1980) because that mtdna and chromosome y with recombination low are follow the source derivation at lines father and mother possible is) 2004, . (strachan and read so can for check change and variety

dna at studies phylogenetic from sequence chromosome y, mtdna and markers dna use did kavar and dovc, 200 8).

So check structural diversity genetically among sheep population in the city of ilam, determination space genetically among they and have information exact genetically from this populations according to structure genome they it necessary is. The use of molecular markers in recent determine genetic variation among populations and animal protection, wide application has emerged. The polymorphism obtained from these genetic markers, one of the measurable parameters for population studies different and understand the difference the similarity between populations host (davis et al., 2002). In the meantime, ssr due to the advantages they have over other markers for population genetics studies are preferred. The international society for animal genetics ssr as the best indicator to determine the genetic diversity of species animal has been introduced (mohammadifar and mohammadabadi, 2011). Based on reviews recorded by fao , 66 % of studies to determine the genetic distance using microsatellite what has been done and 70% of researchers ssr chosen have.

This species studies the first studies basic for awareness from condition, purity and connections genetically the crowd of animal is that can on foundation information the resulting, plans correction racial for protection from this races presentation them. With perform this researches basic is that can identify and importance real each population animal and id the and for goals case opinion, action to designing and guidance sexually transmitted system appropriate at this population did. Also with use from this type studies basic, can to genes hand found that no single for animal, but

For society human also valuable are. Research present to follow it is until the variety inside of and among population available at sectional of sheep in the city of ilam and also relations

evolutionary among this population and to help marker ssr review.

History

Mohammad nabi hosni , masoud assadi fawzi , ali esmailzadeh and mr. Abadi (1389) review analysis genetic characteristics growth goat karaki raeini with use from model animal several variable pay. The research findings showed that the amount of correlation genetic between weight three months and weight body at ages next 0.92 to 0.95 estimated was . So weight three months the can to the subject one criteria selection appropriate to intended purpose recovery genetic weight body at goat karaki raeini case use the is .

Mh banabazi, sydasmayl khani, babak moradi and mohammad ashtiani sydrzamyrayy (1385) examined the genetic variation within and between the five iranian sheep populations studied using microsatellite markers. In this paper, the minimum and maximum variation within a population, the average expected heterozygosity for each populations were estimated in all positions, respectively population was kind and kurdish khorasani.

The population and analysis

In this study, a flock of sheep in the city of ilam and to show the type of race was being kurdish or larry. 216 sheep born 8 years 9 to 95 randomly selected for sampling and further tests.

Tables

Table 1. Profile status selected for this study.

Marker and Chromosome	Primers	Accession Numbers
UMN0301	TCA CCC AAC AAT CAT GAA AC TTA AAT CGA GTG TGA ATG GG	AF098773
UMN2706	TCT CTG CTT TCC AGC CTT ATT C AGA GCT TTT AGG ACA GCC ACC	AF098961
UMN3008	AAT TGC ATT CAG TAT CTT TAA ACA TCT GGC/ ATG AAA ATA TAA AGA GAA TGA ACC ACA CGG	L12554
UMN0406	CTC TGG GTA CAA CAC TGA GTC C TAG AGA GTT TCC CTG TCC ATC C	G18444

Table 2- The concentration of PCR components.

Stoke concentration	(volume reaction) ml	Components
100-50 ng / µl	2	DNA
-	(changeable)	H ₂ o
10X	3.2	(Buffer)
10 mM	0.4	dNTPs
1.5 Mm	1	MgCl ₂
pM 10	1	Primer Forward
pM 10	1	Primer Reverse
Unit/ µl ⁵	0.2	TaqDNA Polymerase
-	216	(Total)

Table 3- The number of actual alleles (Na), effective alleles (Ne) and expected heterozygosity (He) for different combinations of locus-population and for each population.

UMN0406	UMN3008	UMN2706	UMN0301	(Marker)
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He	Ne	Na	He	Ne	Na	He	Ne	Na	He	Ne	Na	(Population)
0.85	7	9	0.9	10.3	12	0.87	707	11	0.88	8.2	11	kurdi
0.86	7.1	9	0.87	7.9	11	0.86	7.1	9	0.875	7.88	10	luri

Table 4- Shannon index (I) and polymorphism information conten (PIC) for different combinations of locus-population and for each population.

UMN0406	UMN3008	UMN2706	UMN0301	(Marker)				
PIC	I	PIC	I	(Population)				
0.87	2.065	0.9	2.396	0.88	2.23	0.88	2.266	kurdi
0.86	2.07	0.87	2.242	0.86	2.074	0.87	2.18	luri

RESULT CONCLUSION

Table 1 shows the results of agarose gel electrophoresis showed that 8.0 percent quality dna the extracted using salting pretty good, and almost all the bands of the samples were transparent and without strain. In table 2 reactions pcr with four primers were used, all study sites planned thermal obtained for that position, were reproduced , products pcr using a 1% agarose gel electrophoresis were evaluated. After confirming replication, polyacrylamide gel electrophoresis products pcr was performed and then polyacrylamide gels were stained.

The results of table 3 likelihood ratio test for the position. Umn3008 showed that this position was seen only among the state lori hardy - weinberg deviate. The results of the chi-square test showed that the cause of all the sheep population except umn0406 no significant deviation from hardy - weinberg is (05/0 p>). The distortions caused by small sample sizes, elections. Once in every place all populations were considered together, with both test significant deviation from hardy - weinberg equilibrium in more places was seen (05/0 p <), because such an evolution than either direction can be seen in different populations for a particular site over time as a result of geographical differences in their distribution areas has been happening. The high rate of mutations in microsatellites and create allele new allele by null in some markers is also an important factor deviation from equilibrium

Table 3 shows the actual number of alleles (na) and number of effective alleles (ne) for different combinations of positions - population. Most alleles at position of umn0406 _umn3008 - umn0301 is located. The number of effective alleles related to the umn2706 the maximum value of the position umn3008), respectively, also due to the small sample size and abundant polymorphic microsatellite alleles should not follow of dedicated return.

When the expected hetero zygo sity for each populations in all positions and average expected hetero zygo sity positions, respectively, the highest and lowest value he in order for the population of larry (0 .87) and kurdish (755/0), respectively. The results indicate high variability in the population studied, the whole place as a result of the study were polymorphic, there is no danger of the loss of hetero zygo sity. Little difference between

Maximum and minimum values show that the variation within the population studied populations were almost identical. Also we can say that this place parents flock test to determine the appropriate are.

See table 4 , the results of pic similar to that of hetero zygo sity and shannon had been achieved was achieved. The maximum amount pic the combined position - population about the place of umn3008 larry population and also its lowest position. Umn0406 in population was kurdish. Place such as polymorphic

microsatellite markers in case of having values pic higher than 5.0 are considered markers of high information content are High values obtained for the value of pic in population and place studied the extent that the position polymorphic microsatellite much as are expected is. However, the use of primers in this study that in other studies showed high polymorphism they increase the likelihood of achieving polymorphism in new studies a.

The results of the assessment criteria in diversity the crowd like shannon, polymorphism information content, alleles, effective number of alleles and genetic diversity nei reflects the diversity of the populations that are appropriate its ability to save as a genetically suitable for breeding in the city take into account the different objectives and assumptions with respect to compliance with clear results can be concluded that microsatellite markers in this study a very ability to review and assess the genetic diversity and relationships within and among populations and evolutionary relationships among population and the general population genetics studies are.

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