

Karyotype of *Pipistrellus kuhlii* (Natterer in Kuhl, 1819), (Chiroptera: Vespertilionidae) from Iran

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Abstract

The karyotype of *Pipistrellus kuhlii* (Vespertilionidae) was recorded for the first time from Iran. The diploid number of chromosomes (2n) and the fundamental numbers of chromosomal arms (NFa) were determined to be 2n = 44 and NFa = 50. With respect to the diploid chromosome number, the fundamental chromosome number and the number of autosomal arms, the karyotype is identical with those of the populations in other countries, except for Azerbaijan with NFa = 52,

Key words: Karyology, *Pipistrellus kuhlii*, Chiroptera, Iran.

INTRODUCTION

Kuhl's Pipistrelle, *Pipistrellus kuhlii* (Natterer in: Kuhl, 1819) is one of the most common species of the Old World. It ranges widely in the southern Palaearctic and Afrotropic, and also marginally western Oriental region; Canary Islands, South Europe from France and the Iberian Peninsula to Switzerland, Austria, Hungary, Balkan States, Crimea, Volga Region, the Caucasus, Turkey, Syria, Lebanon, Israel, Jordan, Saudi Arabia, Kuwait, Oman, Bahrain, Yemen, Iraq, Iran, Afghanistan, Turkmenistan, Kazakhstan, North Africa from Morocco to Egypt. It is found extraliminally in Cape Verde Islands and most of subsaharan Africa to Cape Province, Pakistan and eastern India [1].

The karyology of *P. kuhlii* has been recorded from several countries in Eurasia and North Africa, but no karyotypic information is available in Iran. The present study aims to report the chromosomal morphology and karyotype of *P. kuhlii* samples from Ilam Province (Iran) and to compare the data obtained with those known from other populations of this polytypic bat in the Palaearctic Region, thereby helping to characterise the populations from this part of its distribution range.

MATERIAL AND METHODS

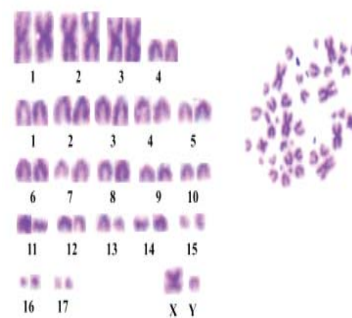
Four bat specimens (2 specimens ♂♂, 2 specimens ♀♀) were captured by use of hand-nets from Chehilzari Village near Zarneh Town (33°55' North, 46°10' East) is situated in Ilam Province on 20 November 2006. These animals were examined with respect to karyological features.

Conventional stained chromosomes of specimens were examined according to standard procedures. By examining the photographs of about 20–25 metaphase cells of each bat, the diploid number of chromosomes (2n), the fundamental number

of chromosomal arms (NF) and the number of autosomal arms (NFa) were determined along with metacentrics, submetacentric, and acrocentrics with respect to centromere positions. All specimens were skinned in the standard museum material type, and their skins, skulls and karyotype preparations have been deposited at the Department of Biology, Zenjan University, Zenjan (Iran).

RESULTS

The karyotypes of four animals of Kuhl's Pipistrelles from Zarneh (Ilam) contain three pairs of large metacentrics, one pair of middle sized submetacentric and 17 pairs of middle to small sized acrocentrics in the autosomal set. The X chromosome is middle sized metacentric and the Y chromosome was small acrocentric. As a result of these, the diploid number of chromosomes was determined to be 2n = 44 and the NF and NFa are 54 and 50, respectively (Figure 1).



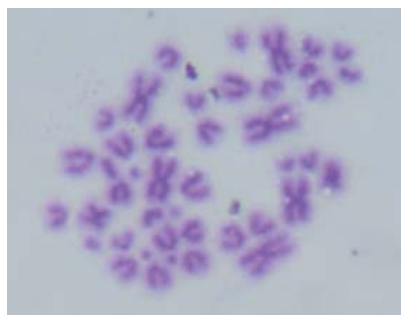


Figure 1. Karyotypic plate of a male *Pipistrellus kuhlii* from Zarneh (Ilam, Iran) ($2n = 44$, NFa = 50).

DISCUSSION

Our findings from Iran were identical, with respect to chromosomal morphology, to those reported from the populations in other countries, except for Azerbaijan (Table 1). The diploid chromosome ($2n$) was determined as 44 from all countries. But the number of autosomal arms have been reported varying from 50 to 52. Although this number was recorded as 50 for individuals from Italy [2]; Azerbaijan [3]; Tunisia [4]; Former Czechoslovakia [5]; Greece [6, 7]; Ukraine [8]; Turkey [9] and Jordan [10], it was also established as 52 by Kuliev an Fattaev [11] from Azerbaijan, regarding the shape of the one pair of acrocentric chromosomes as biarmed.

The result of our present analysis was consistent with the previous findings from literature and led us to the conclusion that no chromosomal polymorphism in this species.

Table 1. Karyotypic records of *Pipistrellus kuhlii* in different countries (biarmed: metacentric or subtelocentric, acrocentric (incl. dot-like).

2n	biarmed	Acrocentric	NFa	X	Y	Location and Reference
44	8	34	50	M	A	Italy [2], Azerbaijan [3], Tunisia [4], Former Czechoslovakia [5], Greece [6, 7], Turkey [9], Jordan [10]
44	10	32	52	M	A	Azerbaijan [11]
44	8	34	-	M	-	Ukraine [8]
44	8	34	50	M	A	This study

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