

Genetic diversity and relationships of indigenous Kenyan camel (*Camelus dromedarius*) populations: implications for their classification

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Abstract

The genetic diversity and relationships amongst the dromedary (*Camelus dromedarius*) populations are poorly documented. Four recognized Kenyan dromedary breeds (Somali, Turkana, Rendille, Gabbra) and dromedary from Pakistan and the Arabian Peninsula (Saudi Arabia, United Arab Emirates) were studied using 14 microsatellite loci. Phylogenetic analysis showed that Kenyan dromedaries are distinct from Arabian and Pakistani populations. Expected heterozygosity and allelic diversity values indicate that Kenyan dromedaries are less diverse than non-Kenyan populations. With the exception of the Somali population, the Kenyan dromedaries are poorly differentiated (average $F_{ST} \approx 0.009$), with only one to two loci separating the Gabbra, Rendille and Turkana populations studied ($P < 0.05$). Individual assignments were performed using the maximum likelihood method. A correct breed assignment of only 39–48% was observed for the Kenyan dromedaries, using an allocation stringency of a log of the odds ratio >2 . Our results do not support the present classification of the indigenous Kenyan dromedary into four distinct breeds based on socio-geographical criteria. Instead, our results point to just two separate genetic entities, the Somali and a group including the Gabbra, Rendille and Turkana populations.