

9. Body Measurements of Saudi Arabia Camel Breed (*Camelus dromedarius*)

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Introduction

The total population of dromedary in the Arabian Peninsula was estimated at approximately 1.6 million camels, about 53% in Saudi Arabia (Al-Ekna, 2008). The Kingdom of Saudi Arabia is probably one of the main areas where the dromedary camel was domesticated 5000 to 6000 years ago (Uerpman and Uerpman, 2002), and is the place where the camel biodiversity is one of the most important in the world. The selection for milk or meat or race purpose as well as the selection for coat color lead to a high variety of breeds and types which have been described by several authors. The present study aimed to classify the camel breed of Saudi Arabia on the basis of their body measurements in an attempt to identify groups with similar conformation.

Material and Methods

Total of 152 camel owners were visited in 9 regions of the kingdom (Al-jouf, Ar'ar, Tabuk, Tabarjal, Riyadh, Qassim, Hail, Jazan and Al-bahah). They were selected on the basis of variability in breed composition of their camel farm. In each farm, a questionnaire was applied and measurements were taken from female and male camels regarded by their owner as the more characteristic for a given breed. Data from 212 camels (155 female and 57 males) belonging to 12 different camel breeds or types were collected.

The measurements were taken on standing animals with a measuring tape in cm. The following measurements were taken: (i) the length of the head from nose to occipital (LH), (ii) The length of the neck (lower part) from base of head to the chest (LN), (iii) The circumference of the neck at the middle of the neck (CN), (iv) The height at the withers (HW), (v) girth circumference at the middle of the thigh (TC), (vi) The length of the left front teat (LT), (vii) The length of the udder from the front to hind attach (LU).

The mean of the different measurements was computed (Table 1). In a second step, a table including the 12 identified breeds (in row) and the different mean values of body measurements (in column) was analyzed by automatic clustering, achieved for assessing the proximities between the different breeds according to their mean body measurements.

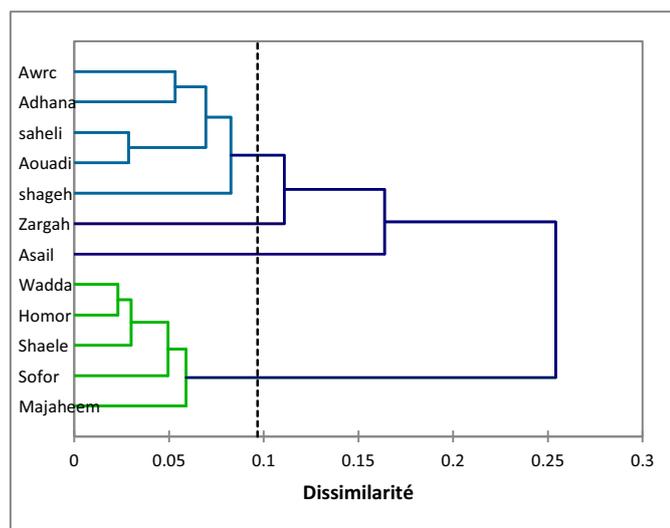
Results

The Body measurements for female Saudi camels is given in Table 1 and their clustering is given in Figure 1.

Table 1. Mean body measurements of 12 types or breeds of female camel of Saudi Arabia (in cm)

Breed	Lhead	Lneck	cNeck	Lteat	Ludder	Height	GirthC	ThighC
Adhana	42.1	87.8	74.8	4.2	17.0	173.0	180.5	73.3
Aouadi	42.4	97.6	79.3	4.7	15.7	174.3	191.3	83.6
saheli	42.8	96.2	86.4	5.1	16.7	176.0	195.9	84.3
shageh	39.3	92.3	92.0	5.2	17.0	182.7	180.7	90.3
Awrc	41.5	92.0	88.8	4.6	18.5	199.3	201.0	88.8
Zargah	40.5	87.0	91.0	4.5	22.0	185.0	222.0	86.5
Asail	42.3	94.3	86.3	2.0	6.3	185.8	199.3	78.3
Homor	46.5	107.1	83.9	4.7	25.6	186.7	217.3	93.1
Majaheem	46.9	110.7	89.4	6.8	25.0	192.2	219.2	94.9
Shaele	46.9	104.5	83.0	4.1	24.8	187.0	213.5	86.9
Sofor	48.1	98.7	81.0	4.3	22.7	185.3	220.9	85.3
Wadda	47.4	108.6	79.0	4.8	25.4	186.7	221.8	93.0

Figure 1. Classification of the 12 female camel breeds of Saudi Arabia according to their body measurements showing four types of camels



Discussion

The body measurements for phenotyping had been used in the camel (Ishag *et al.*, 2011). Except for the thigh circumference, the body measurements are poorly correlated, i.e., relatively independent of the different parameters chosen. The classification of Al-Ekna is based on ecosystem (desert, hill, coast) or use (riding, racing or production), and the present phenotyping was close to this classification.

References

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