



Short Communication

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Camelids Orgling Sounds Help Female Alpacas to Ovulate

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Abstract

Reproductive behavior is an important component of breeding in animal kingdom. The importance of pheromones produced, especially by the male is well recognized for successful breeding. Influence of sounds emitted, and visual and physical contact between male and females of numerous animal species is noted. Hypothesis was tested that orgling, the male sound produced during mating in camelids results in spontaneous ovulation in females. The size of ovarian follicles in three groups of alpacas were recorded by ultrasonography. The orgling sound of male alpaca induced ovulation in females having ovarian follicles ≥ 7 mm.

Keywords: Camelids, Alpaca, Mating Behavior, Orgling Sounds, Spontaneous Ovulation

Introduction

Camelids, which include 2 domestic (alpaca, llama) and 2 wild breeds of South American Camelids (SAC) and 2 from the Old World (1 and 2-humped) camels are classified as seasonal breeders and induced ovulators. They all have same number (74) of chromosomes. Vicuña and guanaco, wild members of the SAC are territorial throughout the year and the boundaries of their territories are marked with the so-called latrines or bosteaderos (in Spanish), where all members of the family defecate and urinate, including the young. A unique post-breeding feature in alpaca and llama is noted that they are generally raised in herds of only females and only males; until the next mating season to joint 6-10 males for every 100 females and the formation of dunghills grounds by both sexes starts again [1].

The impact of various reproductive behaviors on induction of ovulation in SAC has been investigated. Fernández Baca et al. [2] published a study on ovulation induction in alpacas, in which receptive female alpacas (n=20) were identified by a teaser or

vasectomized male. Five percent (5%) of them ovulated after 26-30 hours, as well as other 15% of the females ovulated after being covered with a plastic sheet on the rump and vulvar region to avoid penis penetration to prevent copulation. However, the cited authors state that the alpacas were not deprived of the senses of vision and hearing, so they did not have an explanation for these ovulations that we will call "spontaneous ovulations." Studies by Sumar and Leyva [3] and Sumar and Garcia [4] determined that spontaneous ovulations were more numerous during reproductive season (up to 50%). Our hypothesis was that spontaneous ovulations in SAC are produced by pheromones present in the urine and feces of the dunghill, and by the sounds (orgling) of the males during copulation or both.

Material and Methods

To test the hypotheses, two studies were carried out. Treatment I (TI) consisted of placing 10 non-pregnant alpacas selected for having follicles ≥ 7 mm by ultrasonography in the pasture field, 6



kilometers from the main buildings of the Quimsachata Research Station at Puno, Peru. The females were isolated and making them listen to an audio of the snoring or orgling, that the male emits during copulation for 15 minutes per day and for two consecutive days and observing the behavior of the females. Treatment II consisted of another group of 10 non-pregnant females. Five of these females had ovarian follicles no bigger than 6 mm (TIIA), and the other 5, with follicles ≥ 7 mm (TIIB). Treatment III consisted of females that sat next to the couple (male/female) copulating. Out of 86 females and 6 males; in 8 minutes, 7 females sat next to the copulating males. These females were transported to the Experimental Station. Upon transrectal ultrasonography of the 7 females; 5 females had ovarian follicle 7-9mm (TIIB), and 2 females showed small follicles (2-6mm) (TIIA).

Results and Discussion

Out of 9 female alpacas in Treatment group I sat in a recumbent position for about 3-5 minutes to hear the phono audio (90%) and only one of this group showed a collapsed bleeding follicle (Corpus hemorrhagicum) in one of the ovaries (10%), indicating a previous ovulation of unknow stimuli before or during transportation to the experimental station. The five alpacas from groups TIIA stayed at foot during the two expositions to the sound of an orgling male and the other 5 from group TIIB, sat between 5 to 10 minutes. Five females of the Treatment III showed follicles between 7-9mm and 2 of them presented follicles between 2-6 mm ($P \leq 0.005$). These results indicate that the orgling sound of the male alpaca induced spontaneous ovulation in females having follicles \geq to 7mm (Table 1).

Table 1: Influence of orgling (sound produced by male alpaca during copulation) on ovulation induction in alpacas.

A	B	C	D	E	F
Treatment	T1	TIIA	TIIB	TIII	TIV
N Females	10	5	5	10	10
Type of Treatment	Audio	Audio	Audio	Visual	Visual + Audio
Follicle size	≥ 7 mm	≤ 6 mm	≥ 7 mm	7-9mm	8-12mm
Duration of stimuli	15'/for 2 days	15'/for 2 days	15'/for 2 days	15'/for 2 days	15'/for 2 days
Observations	9 females sat for 3-5'	No response	All females sat for 5-10'	All sat for 15'	Sat for 18' when audio was played
Results	9 females ovulated, 1 had an old CL	No ovulations	All ovulated	All ovulated	All ovulated

Based upon our findings, it was determined that sound communication (orgling) in alpacas plays an important role in reproductive behavior and ovulation. Sound communication in many mammalian species seem to transmit information from one animal to another. In alpacas, one of the signals, the auditory communication results in females surrounding the couple copulating, and receptive females taking the sitting position next to the copulating male, waiting to be mounted by the male. The seated female's response having ≥ 7 mm follicle, will ovulate by the so-called 'male sound effect.'

References

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