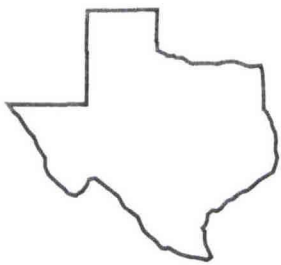
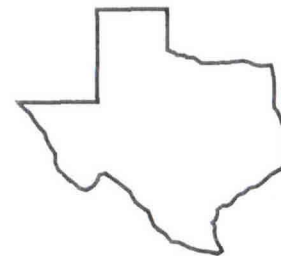
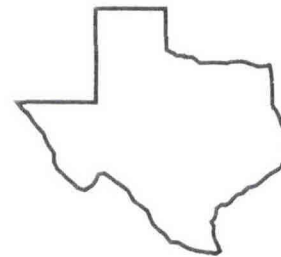
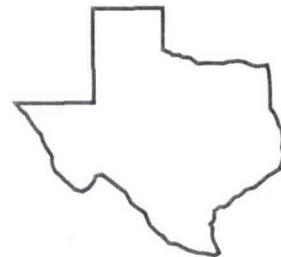


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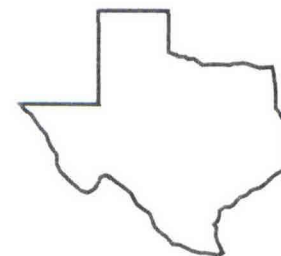
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REPRODUCTIVE CHARACTERISTICS OF MALE ANGORA GOATS CONSUMING GUAJILLO (*Acacia berlandieri*)

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Background. Due to its high nutritional quality, the guajillo shrub (*Acacia berlandieri*) is generally considered to be a desirable species in rangelands. However, it is known to contain the phenolic amines N-methyl- β -phenethylamine (NMPEA) and tyramine (T), and is toxic when over consumed by sheep and goats. In wethers, acute administration of NMPEA alone or in combination with T has been reported to cause increased release of cortisol and noradrenaline and to inhibit luteinizing hormone release. It has not been determined if guajillo consumption alone can impair reproductive functions in grazing ruminants. The objectives of this experiment were to determine the effects of long term guajillo consumption on body weight (BW), scrotal circumference (SC), ejaculate volume (VOL), progressive motility (PM), and concentration (CNC), total sperm cells per ejaculate (TPE) and post-mortem anterior pituitary (AP), vesicular (VG) and bulbourethral (BG) glands and testes (T) weights of male Angora goats.

Research Findings. Twenty-four male Angora goats between 8-10 months of age were randomly distributed according to BW, SC and semen characteristics to 2 groups: C (maintained under controlled feeding conditions) and GUA (grazing pastures with high guajillo coverage). After 10 days and through 66 days, semen was collected by electroejaculation every 14 days and BW and SC were recorded. Semen was analyzed for VOL, PM, CNC and TPE. At 90 days of guajillo consumption all animals were slaughtered and the weights of AP, VG, BG and T obtained. None of the animals showed any signs of acute toxicity. A significant group/time interaction on BW was observed ($P < 0.01$) with similar weights between groups until 38 days of guajillo consumption and a slight decrease in gains of GUA after 52 days. Semen characteristics were variable and no differences were detected in PM, CNC and TPE between groups. A group/time interaction ($P < 0.01$) was detected for VOL with VOL being lower in GUA after 52 days. The same group/time interaction was observed in SC ($P < 0.01$) which was severely affected in GUA after 38 days. AP, VG, T ($P < 0.01$) and BG ($P < 0.05$) weights were significantly reduced in GUA compared with C. Body weights were lower in GUA at slaughter (48.2 ± 5.3 lb in GUA vs 68.7 ± 4.3 lbs in C). Results for BW, SC and post-mortem findings are depicted in Table 1 and Figures 1 and 2.

Application. Results of this study confirm previous findings of potential adverse effects of guajillo consumption on reproductive function. These adverse effects can be noticeable long

before development of acute toxicity, and can severely affect the reproductive efficiency of animals grazing guajillo independent of any effects on body weight.

Table 1. Anterior pituitary (AP), vesicular gland (VG), bulbouretral gland (BG) and testes (T) weights.

Group	AP (g)	VG (g)	BG (g)	T (g)
Control	0.199±.008 ^a	5.61±.70 ^a	1.14±.08 ^c	178.33±10.38 ^a
Guajillo	0.142±.009 ^b	2.45±.22 ^b	0.78±.16 ^d	96.93± 9.34 ^b

Means with different superscripts are statistically different, ^{a,b}(P<0.001) ^{c,d}P<0.05).

FIGURE 1. BODY WEIGHT

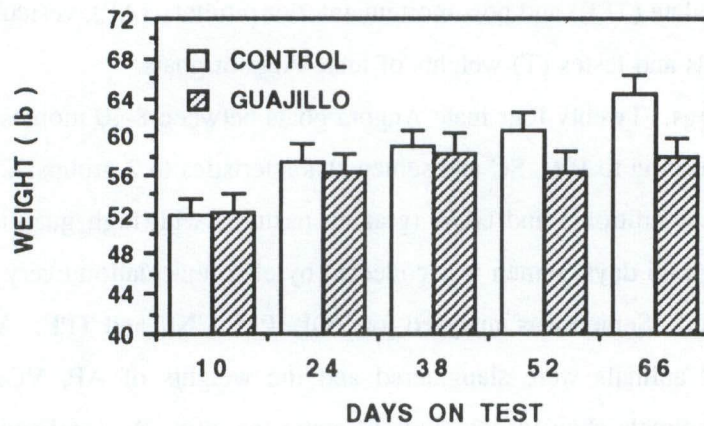


FIGURE 2. SCROTAL CIRCUMFERENCE

