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Use of Turnera Diffusa Wild (Damiana of California) Lyophilized in Pigs with Underweight to the 28 Days of having Weaned

Research Article

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Author Details

Vazquez Flores Felicitas, Mendez Palacios Nestor, Galicia Domínguez José Alfredo, Mendez Palacios Netzi Naidi, Mendez Mendoza Maximino*

Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma de Puebla, Mexico

*Corresponding author

Méndez Palacios Néstor, Faculty of Veterinary Medicine and Zootechnia, Benemérita Universidad Autónoma de Puebla, 7.5 Carretera Cañada Morelos El Salado Tecamachalco, Pue, Méxicoz

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Abstract

The objective of this study was to evaluate the productive behavior of the pigs with underweight after 28 days of having weaned, using a lyophilized of *Turnera diffusa* for intramuscularly, 56 animals. The doses were managed: 0 ml H2O, 2 ml H2O, 2, 4, 6, 8, and 10 ml of Turnera. The application days 0–7–14–21. A design Totally at random, with simple ANOVA, for conversion, initial weight, and ANACOVA for total gain and, I weigh final, the test of Duncan, using the initial weight like covariable to adjust the final weight, daily gain and total gain. The final adjusted weight differed ($p < 0.05$) of those that were not treated in the levels of 8 and 10 ml of *Turnera disffusa*. In conclusion these results ratify that the lyophilized of *Turnera* achieved the increment of these levels with a view to that the animals of underweight they acquire a normal development.

Keywords: *Turnera diffusa;* Retarded; Lyophilized; Weaned; Pig

Introduction

Turnera diffusa also called Damiana of California is a small shrub found in Mexico, Caribbean, Central America and South America, the medicinal parts are the leaves, cut during flowering (Martínez, 1959). They contain triacontene, β-sitosterol, hexaconasol and 5-hydroxy-7, 3 ‘, 4’-trimethoxyflavone (Domínguez et al. [1]), α and β pineno, p-cimeno and 1, 8 cineole, tannins, resins, hydroquinones and cyanogenic glycosides (Steinegger and Hânsel, 1992), its use dates back to the Mayan civilization (Martínez, 1959). Looking for a practical application of the lyophilisate of Turnera to evaluate the productive behavior of four-week-old animals of low weight weaning with high quality food and animals of great genetic potential, variations at different doses of the product were analyzed intramuscularly.

Materials and Methods

The study was conducted in Tecamachalco, Puebla, Mexico; Located at 95 ° 30 ‘LN and 48 ° 10’ LO at 2150 meters above sea level (masl) with mild climate and an average annual temperature of 18 ± 5.0 ° C in the coldest months and 35 ± 6.7 ° C during the hottest months, with a rainfall that fluctuates around 500 mm per year. 56 commercial pigs of 50 days of age were used, randomly selected in the productive flow with low weight and with normal weights at that age. The chosen animals were distributed in seven cages with 12 each and with eight experimental units, they were identified by notches. The food corresponds to phase II with free access. For the determination of consumption, the total supplied during the week in each cage was calculated. The lyophilisate of Turnera (250 mg) dissolved in 250 ml of distilled water. Taking into account the hypotheses proposed, the following levels of the Factor under study were used: 0 ml H2O, 2 ml H2O, 2, 4, 6, 8, and 10 ml of lyophilized Turnera diffusa.

Distilled water and Turnera were applied intramuscularly on days 0–7–14–21 from the fourth week of weaning. Individual live weight every seven days from the start of the experiment, cage feed intake

/ week, mortality, Daily gain g / day, feed intake / day, Design Completely random, using simple ANOVA, for conversion, initial weight, indicators blood and ANACOVA for total gain and, final weight, the Duncan multiple comparisons test was applied, using the inical weight as a covariate to adjust the final weight, daily weight gain and total weight gain. All statistical hypotheses were formulated for a 5% level. The results were statistically processed using the statistical package SPSS V 10.1.

Results and Discussion

During the experimental stage there were no deaths of treated animals, those who received lyophilized Turnera differ significantly ($p < 0.05$) from those normally exploited (Huerta, et al. [2]), as observed in the following table. (Table 1) shows the traits of productive behavior where the low-weight pigs had initial weight with significant differences ($p < 0.05$), the values after two weeks of weaned, not yet reached the normal value, for this age (English P, et al. [2,3]), with foods of the highest quality the final adjusted weight of the animals differed significantly from those that were not treated, standing out in the 8 and 10 ml levels of Turnera disffusa Willd, as the use of the stimulator achieved that the final adjusted weight of the animals was higher, which this product apparently produced in low-weight pigs was a metabolic effect. Above all, taking into account that the conversion did not differ significantly although it presented a high variability, it does not show significantly the greater efficiency that may have been achieved by applying the stimulator [4-5].

In the nutrient consumption no significant differences were found among the animals of the experiment, which proves that the weight gain of the treated animals was due to the application of the lyophilized Turnera, since these nutrients were consumed by all the pigs in the same way being these of the highest quality for this age, it was also observed that the nutritional conversion, related to the consumption of food does not suffer differences and only in the final weight. In conclusion, these results confirm that the lyophilisate of Turnera achieved the increase of these levels with a view to low-weight animals acquiring normal development.

Table 1: Productive indicators and doses applied during the experiment.

Indicator	Treatment				± ES	SIGN.
	Prod.	8 ml H2O	8 ml TL	10 ml TL		
Initial weight (Kg)	9.28 a	8.98 a	5.75 b	5.13 b	0.44	*
Final weight(Kg)	14.7 b	15.8 b	23.6 a	25.3 a	1.58	*
Gain (g/ day)	509 ab	443 b	646 a	686 a	57.9	*
Gain(kg) 0-28 days	14.2 b	12.4 b	18.1 a	19.2 a	1.62	*
Conversión (Kg)	3.38	2.21	2.72	1.23	0.38	NS
Prod. = Production conditiions + 0ml of Distilled water						
8ml H2O = Production conditions +8ml of Distilled water						
8ml TL = Production conditions +8ml of Lyophilized Turnera						
10ml = Production conditions +10ml of Lyophilized Turnera						
Final weight (Kg) y Gsin (g/día) were estimated considering the initial weight as covariate.						
* P<0.05 NS P>0.05						

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