



# Influence of nanoencapsulated essential oils on the broilers' productive parameter

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## INTRODUCTION

- Successful industrial poultry farming requires reaching the maximum of bird genetic potential in terms of productive performance.
- Essential oils in liquid form are chemical compounds sensitive to light, heat, and oxidation. Therefore, nanoencapsulation may be a suitable method to protect them from degradation and evaporation.
- The goal was to explore the possibility of replacing the antibiotic-growth promoters in the feed with a composition of nanocapsulated essential oils of local Peruvian plants - guanabana, lemon and eucalyptus.

## METHODS

- The study was carried out on broiler chickens of the Cobb 500 in the vivarium of the National University of Trujillo.
- In the experimental groups, the birds received a composition of nanocapsulated essential oils with feed at a dosage of 75 g/t in different proportions.

Group	T0	T1	T2	T3	T4
Halquinol	100	0	0	0	0
Guanabana	0	33.4	50	25	25
Lemon	0	33.3	25	50	25
Eucalytus	0	33.3	25	25	50

Table 1. Scheme of the experiment on the use of nanoencapsulated essential oils in feed (% content in the composition)

## CONCLUSION

- The essential oils improved growth performance, feed efficiency, yield of eviscerated carcasses and the yield of breast in broilers.

## RESULTS

Table 2. Performance indicators of chickens of experimental and control groups

	Group					SEM	P-Valor
	T0	T1	T2	T3	T4		
Body weight at depletion (kg)	3.03 <sup>c</sup>	3.50 <sup>a</sup>	3.40 <sup>ab</sup>	3.13 <sup>bc</sup>	3.33 <sup>abc</sup>	0.049	0.005
Average daily growth rate (g)	70.80 <sup>c</sup>	82.15 <sup>a</sup>	80.38 <sup>ab</sup>	73.20 <sup>bc</sup>	77.38 <sup>abc</sup>	5.47	0.003
Consumed Feed (kg)	5.29	5.54	5.44	5.24	5.34	0.011	0.128
FCR (feed conversion ratio) kg/kg	1.78 <sup>b</sup>	1.62 <sup>a</sup>	1.62 <sup>a</sup>	1.70 <sup>ab</sup>	1.63 <sup>a</sup>	0.014	0.024

Table 3. Meat production of chickens of the experimental and control groups

	Group					SEM	P-Valor
	T0	T1	T2	T3	T4		
Body weight at depletion (kg)	3.03 <sup>c</sup>	3.50 <sup>a</sup>	3.40 <sup>ab</sup>	3.13 <sup>bc</sup>	3.33 <sup>abc</sup>	0.049	0.005
Carcass weight (kg)	2.24 <sup>b</sup>	2.80 <sup>a</sup>	2.71 <sup>a</sup>	2.45 <sup>ab</sup>	2.66 <sup>a</sup>	0.059	0.005
Carcass yield (%)	73.88	80.25	79.83	78.18	80.33	3.90	0.078
Brest weight (kg)	0.67 <sup>c</sup>	0.91 <sup>a</sup>	0.77 <sup>abc</sup>	0.72 <sup>bc</sup>	0.86 <sup>ab</sup>	0.11	0.001
Brest yield (%)	30.03 <sup>ab</sup>	32.58 <sup>a</sup>	28.45 <sup>b</sup>	29.40 <sup>b</sup>	32.40 <sup>a</sup>	2.03	0.001
Abdominal fat weight (kg)	0.043	0.053	0.063	0.049	0.044	0.01	0.217
Abdominal fat yield (%)	1.88	1.90	2.30	1.93	1.65	0.39	0.235

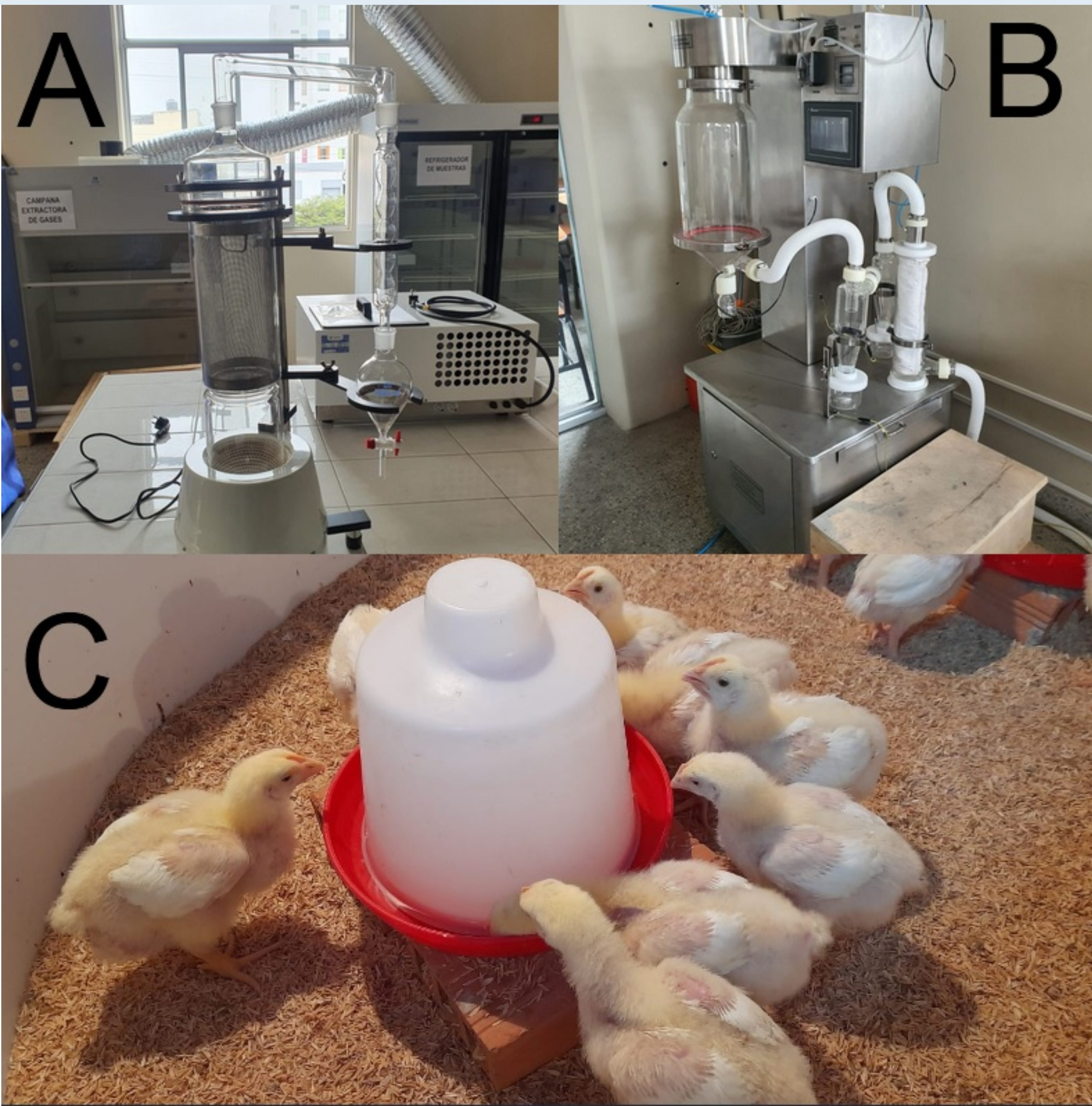


Fig 1: Oil Extractor (A), Nano Spray Dryer (B), Broiler chickens feeding time (C)