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Evaluation of Dietary Supplementation of a Phytogetic Blend and Ractopamine HCl to Growing Pigs on Pork Meat Quality

S. M. Mendoza^{1*}, I. Mueller², E. Hendel¹, R. Murugesan¹, and G. Gourley³

¹BIOMIN America Inc., Overland Park, KS, 66210, USA; ²BIOMIN Holding GmbH, Getzersdorf, Austria, ³Gourley Research Group, Webster City, IA, 50595, USA

*Corresponding author. Email: santamaria.mendoza@biomin.net (S. M. Mendoza)

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Objectives

Phytogenics are plant-derived compounds that have biological activity to support animal health and growth. The present experiment aimed to determine the effect of dietary supplementation of a phytogetic feed additive (PFA, Digestarom Finish, BIOMIN America INC.) and ractopamine (Paylean, Elanco Animal Health) to growing pigs on pork meat quality.

Materials and Methods

A subset of 90 loins were collected from a performance study. During the performance study (d 0 to 127),

pigs (PIC genetics, initial BW = 23.5 ± 1.1 kg) were fed corn-soybean meal-DDGs based diets and had ad libitum access to the diets. Dietary treatments consisted of 1) no feed additive [CON], 2) CON + 0.015% PFA, and 3) 5 ppm Ractopamine HCl from d 98 to 127 [RAC]. Pigs were sent to market at approximately 132 kg of BW. Pigs were stunned using electric shock. Carcasses were deep chilled out and 30 loins/treatment (balanced by gender) were collected and aged for 10 d before evaluation at the Iowa State University Sensory Center. Loins were assessed for purge, visual color score (1 to 6, light to dark), visual marbling, ultimate pH, reflectance, cook loss, instrumental force, and sensory attributes (1 to 10, juiciness, tenderness, chewiness, flavor, and off-flavor). Data were analyzed using Mixed pro-

Table 1. Effect of dietary supplementation of a Phytogetic feed additive and Ractopamine HCl to growing pigs on pork meat quality

Item	Control	PFA ¹	RAC ²	Diet SEM	Female	Male	Gender SEM
Weight of loin, g	4532 ^b	4679 ^b	4910 ^a	73.43	4855 ^x	4559 ^y	59.98
Purge, %	1.78	1.84	1.53	0.177	1.79	1.65	0.145
Visual color, score	2.59	2.77	2.85	0.109	2.644	2.830	0.089
Marbling fat, %	1.80	1.66	1.58	0.106	1.489 ^y	1.865 ^x	0.087
Ultimate pH	5.725 ^b	5.749 ^b	5.831 ^a	0.015	5.757	5.779	0.012
Reflectance, L*value	50.23	49.85	49.23	0.447	49.83	49.72	0.365
Cook loss, %	22.88 ^a	21.43 ^b	22.08 ^{ab}	0.467	22.75 ^x	21.51 ^y	0.382
Juiciness	4.91	5.39	5.12	0.261	4.71 ^y	5.57 ^x	0.213
Tenderness	5.02	5.19	4.99	0.304	4.44 ^y	5.69 ^x	5.85
Chewiness	6.33	5.85	6.05	0.332	6.64 ^x	5.51 ^y	0.271
Flavor	3.18 ^{ab}	3.67 ^a	3.01 ^b	0.185	3.15	3.43	0.151
Off-flavor	2.38	1.99	2.31	0.312	2.33	2.12	0.255
Instrumental force, kg	6.80	6.55	6.96	0.183	6.97	6.58	0.149

^{ab}Values in the same row show statistically difference among diets ($P \leq 0.05$) as determined using the student *t* test.

^{xy}Values in the same row show statistically difference between genders ($P \leq 0.05$) as determined using the student *t* test.

¹PFA, Digestarom Finish in the diets of pigs at 0.015% from d 0 to 127.

²RAC, Paylean in the diets of pigs at 5 ppm Ractopamine HCl from d 98 to 127.

cedure of SAS (SAS Inst. Inc., Cary, NC) to determine the effect of diet and gender (the interaction was not significant). Differences between least square means were determined using the *t* test and significance was defined as having a p-value ≤ 0.05 .

Results

RAC increased the weight of loin and ultimate pH compared to PFA and control (Table 1). PFA reduced cook loss compared to control but was not different from RAC. PFA increased flavor attributes compared to RAC but was

not different from control. Loins from males reported greater marbling fat, juiciness, and tenderness and lower weight loin, cook loss, and chewiness compared to loins from females. Weight of the loin, juiciness and tenderness were numerically increased by PFA and chewiness and instrumental force were numerically reduced by PFA.

Conclusion

Data suggest that diet can affect meat sensory attributes and more research is required to understand the benefits of phytochemicals on pork meat quality.