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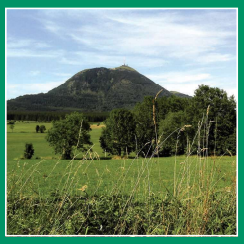

Advances in Animal Biosciences

Herbivore nutrition supporting sustainable intensification and agro-ecological approaches

Proceedings of the 10th International Symposium on the Nutrition of Herbivores ISNH 2018

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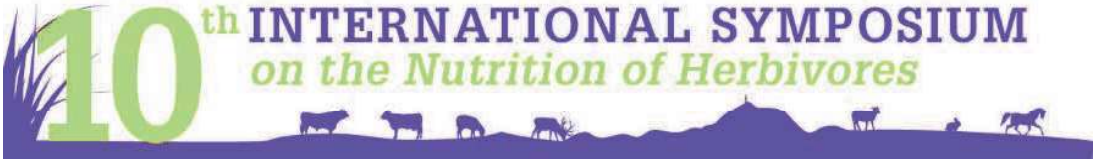

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Nutrient digestibility in Algerian local young rabbits according to dietary energy

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Introduction Balanced diet for fattening rabbits must cover fibre needs for preventing digestive disorders. This is crucial especially in the post weaning period because intestinal digestive maturity is not achieved yet. But reducing fibre content, which is equivalent to increasing digestible energy (DE), results in a reduction of voluntary intake (Gidenne, 2017) because rabbits adjusts their overall consumption according to the DE content of the diet and nitrogen intake expressed by the ratio of digestible protein / digestible energy (Gidenne, *et al.,* 2010). Therefore, the aim of the present work was to study the effect of increasing dietary energy content on nutrient digestibility by Algerian local young rabbits.

Materials & methods Apparent digestibility coefficients (ADC) of the experimental diets were assessed according to the European reference method described by Perez *et al.* (1995). Fifteen (15) young rabbits, 6 weeks old (891±109g), divided into three similar groups and housed individually in metabolic cage. Each group received *ad libitum* one of three diets formulated to obtain 2300, 2450 and 2600Kcal DE/kg DM respectively for L (Low), M (Medium) and H (High) diets and with the same crude protein level (15%). Diets formulated with corn grain (0, 12.5 and 32%), dehydrated alfalfa (35.4, 39.7 and 43.2%), barley grain (20.6, 18.6 and 7%), soybean meal (8, 11 and 13%) and wheat bran (32.5, 15 and 2%) respectively for diets L, M and H. Chemical diets and feces were analyzed. Apparent digestible energy was estimated according to the equation proposed by Battaglini and Grandi (1984). Data (LSM±SEM) were analyzed using SAS software (SAS, 2001) with GLM model. Results are significant at P<0.05.

Results Table 1 show the results of the effect of the DE content in diet on apparent digestibility coefficients on young Algerian local rabbit. Overall, our results of digestibility coefficient (%) showed that the digestibility of the three experimental diets meets the standards of digestibility in the growing rabbit. But digestibility differences were noticed for DM, ash, CF, NDF and apparent digestible energy were significantly higher in the group that received the diet with the highest level of energy. These differences were probably explained by the different proportions of ingredients used in the diets. The high energy diet contained more maize than other diets, and less wheat bran levels. Animals from H group received thus more resistant starch that could escape partially to digestion in small intestine. In that condition, highly fermentable starch was available in caecum and large intestine and might contributed to increase fiber digestibility and thus DE. Gidenne (2010) showed that in growing rabbits, when NDF decrease from 39 to 22% fiber intake decrease by 18g/d (58%) under the combined effect of lower fiber content and the decrease in diet intake, while the amount of starch ingested increases only by 6 g/d. El Tahan *et al* (2012) concluded that growing feeding rabbit with high energy diet containing up to 22.11% starch allowed to obtain the best growth performance and digestibility coefficients.

Table 1 Apparent digestibility coefficients of diets with increasing DE value measured on young Algerian local rabbit.

Digestibility Coefficient (%)	Diet			SEM	*p*-value
	L	M	H		
Dry Matter(DM)	69.72 [a]	71.88 [a]	76.23 [b]	1.00	0.002
Ether Extract (EE)	78.49	75.51	81.07	1.99	0.184
Crude Protein (CP)	79.64	78.31	80.72	1.28	0.439
Ash	73.00 [a]	74.47 [a]	80.09 [b]	1.20	0.003
Crude Fibre (CF)	18.83 [a]	16.91 [a]	27.39 [b]	2.16	0.011
NDF	43.01 [a]	51.19 [b]	69.92 [c]	1.19	<0.001
Apparent Digestibility of Energy	69.90 [a]	72.14 [a]	76.67 [b]	1.04	0.002

SEM: standard error of the mean, [a,b,c,] Means with different letters on the same row differ significantly (P<0.05).

Conclusion This study shows that, the use of diets with different energy content in diet of young local rabbit reared in Algeria's conditions, improved the indicators of digestibility for DM, ash, crude fibre, NDF and the apparent digestibility of energy without causing changes in the digestibility for EE and CP.

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