

Akhir Pebriansyah¹, Petra Silberová², Daniela Lukesová¹, Adéla Dokoupilová³, Karel Janda³.

¹Department of Animal Science and Food Processing, Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague, Czech Republic

²VELAZ, s.r.o., Czech Republic

³Department of Husbandry and Ethology of Animals, Faculty of Agrobiology, Food and Natural Resources,Czech University of Life Sciences Prague, Czech Republic

Introduction

Milk thistle (*Silybum marianum*) belongs to the family Asteraceae which are widely spread in arid and semi-arid areas of Mediterranean regions. An annual plant contains silymarin-flavolignans with hepatoprotective and canceroprotective properties which shows the positive results to improve health and performance of animals.

Aim

The study aimed to investigate the effect of different level and processing methods of milk thistle (*Silybum marianum*) on feed consumption, carcass evaluation and growth performance of broiler rabbits.



Figure 1: Milk thistle (*Sylibum marianum*)



Figure 2: HYLA broiler rabbits

Materials and Methods

A total of 180 HYLA broiler rabbits, 42 days old, were fed with different concentrations of milk thistle supplement - group III (0.5 % of fermented milk thistle) and group II (1% non-fermented milk thistle) in comparison with control group I (standard feed ration without any supplementation). Feed and water were available ad libitum. Each experiment started at 42 days of rabbit age and finished by slaughter when rabbits achieved 2.6 kg of live weight. The feed consumption of rabbits was monitored everyday and the weight gain was calculated weekly, Also, the weight of body part carcass weight and carcass were recorded. Throughout the experiments, the health state of the rabbits in eash group was recorded.

Results

The weight of the body parts, carcass weight, carcass yield, and growth performance were recorded and calculated. Carcass weight and carcass yield in rabbits fed with 0.5 % fermented milk thistle were significantly higher ($P<0.05$) than in rabbits of other groups. However, there were no significant differences ($P>0.05$) between control and experimental groups in the growth performance. Daily feed consumption was higher in the treatment group II and group III compared to control ($P<0,05$).

Table 1. Composition of nutritions of control, non-fermented fed milk thistle (1%), and fermented fed milk thistle (0.5%).

Nutrients	Content
Crude protein	16.5%
Crude fat	2.5%
Crude ash	8.0%
Crude fiber	14.5%
Calcium	1.10%
Natrium	0.35%
Phosphorus	0.6%
Vitamin A	11000 m.j./kg
Vitamin D ₃	1200 m.j./kg
FeSO ₄ .7 H ₂ O	55 mg/kg
KI	1.1 mg/kg
CuSO ₄ .5H ₂ O	12.1 mg/kg
MnO	33 mg/kg
ZnO	33 mg/kg
Na ₂ SeO ₃	0.05 mg/kg
Emanox E10 (probiotic)	0.25%
Probiostan E10	10%
Non fermented milk thistle	1%
Fermented milk thistle	0.5%

compound: alfalfa flour, oat, wheat bran, malt sprouts, sunflower meal, barley, limestone, monocalcium phosphate, salt, dried slops, fruit pulp

Table 2. Performance of control rabbits, non-fermented fed milk thistle (1%), and fermented fed milk thistle (0.5%).

Parameter	Control rabbits	Rabbits fed	
		Milk thistle (1%)	Fermented milk thistle (0.05%)
Final weight (g)	2715 ± 99 ^a	2707 ± 99 ^a	2759 ± 114 ^b
Feed consumption (g)			
– per day	155.7 ± 10.4 ^a	154.7 ± 12.6 ^a	162.1 ± 10.2 ^b
– total	5280 ± 924 ^a	5202 ± 876 ^a	5619 ± 916 ^b
Weight gain (g)			
– per day	41.4 ± 5.9	41.4 ± 5.8	41.3 ± 5.6
– total	1380 ± 159	1374 ± 169	1411 ± 146
Feed conversion (g/g)	3.83 ± 0.59 ^{ab}	3.79 ± 0.45 ^a	3.99 ± 0.56 ^b

^{ab} Values in the same row with different superscripts differ significantly at $p<0.05$

Table 3. Carcass experiments of control rabbits, non-fermented fed milk thistle (1%), and fermented fed milk thistle (0.5%).

Parameter	Control rabbits	Rabbits fed	
		Milk thistle (1%)	Fermented milk thistle 0.5%)
Carcass weight (g)	1562 ± 78 ^a	1575 ± 99 ^a	1609 ± 84 ^b
Carcass yield (%)	57.3 ± 3.4 ^a	58.2 ± 3.3 ^{ab}	58.3 ± 1.7 ^b
Weight of liver (g)	94.7 ± 19.8	96.9 ± 20.8	96.5 ± 17.4
Weight of kidney (g)	43.1 ± 9.9	44.4 ± 10.7	45.7 ± 10.4

^{ab} Values in the same row with different superscripts differ significantly at $P < 0.05$



Figure 3: The evaluation of carcass performances

Figure 5 The comparison of feeding trials with blood profile of cholesterol

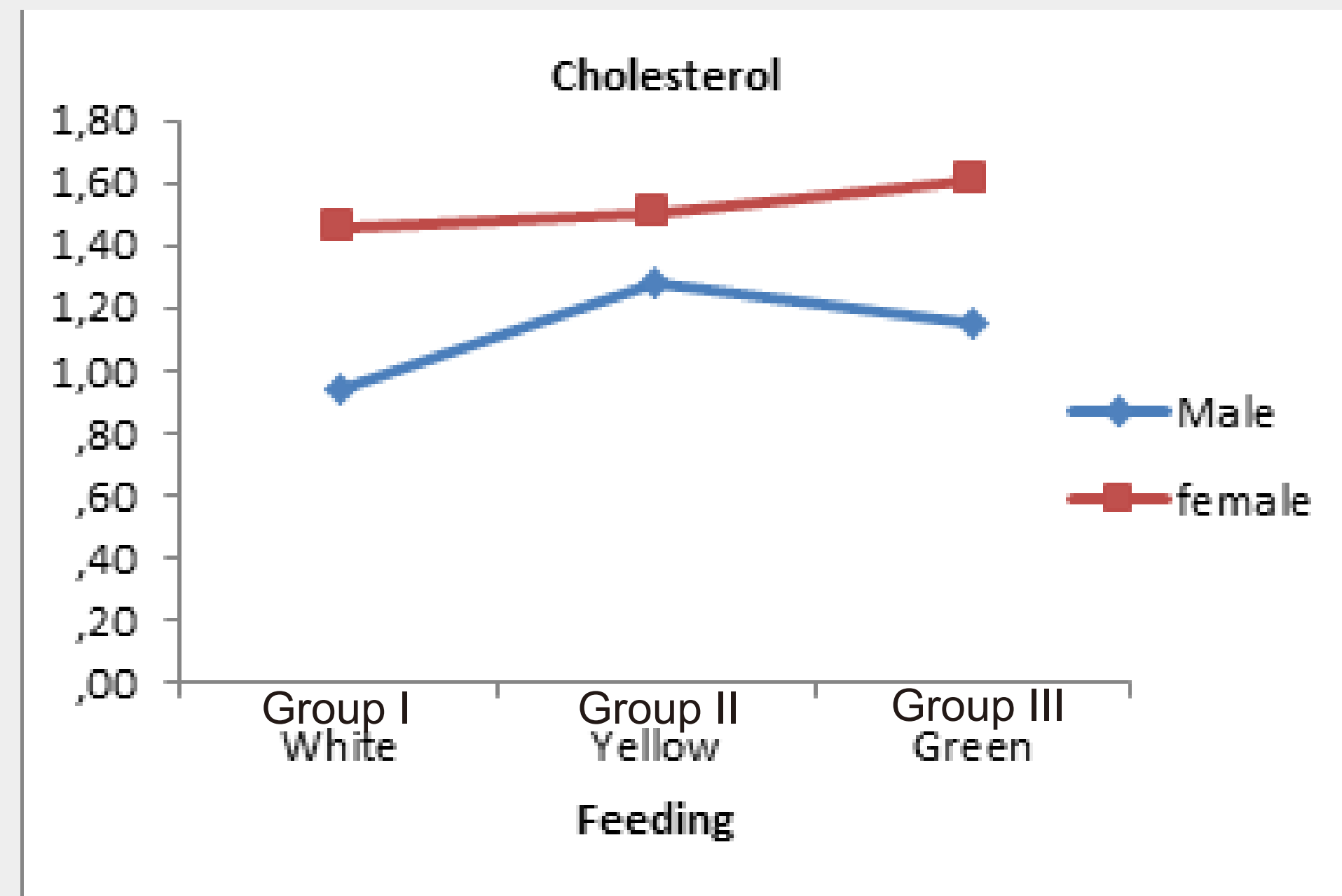


Table 4 Health performance of rabbits

Group	number of slaughtered rabbits	mortality	diarrhea
Control rabbits	145	18	14 ^a
Milk thistle (1%)	145	13	5 ^b
Fermented milk thistle (0.5%)	85	8	5 ^{ab}

Values in the same row with different superscripts differ significantly at $p<0.05$

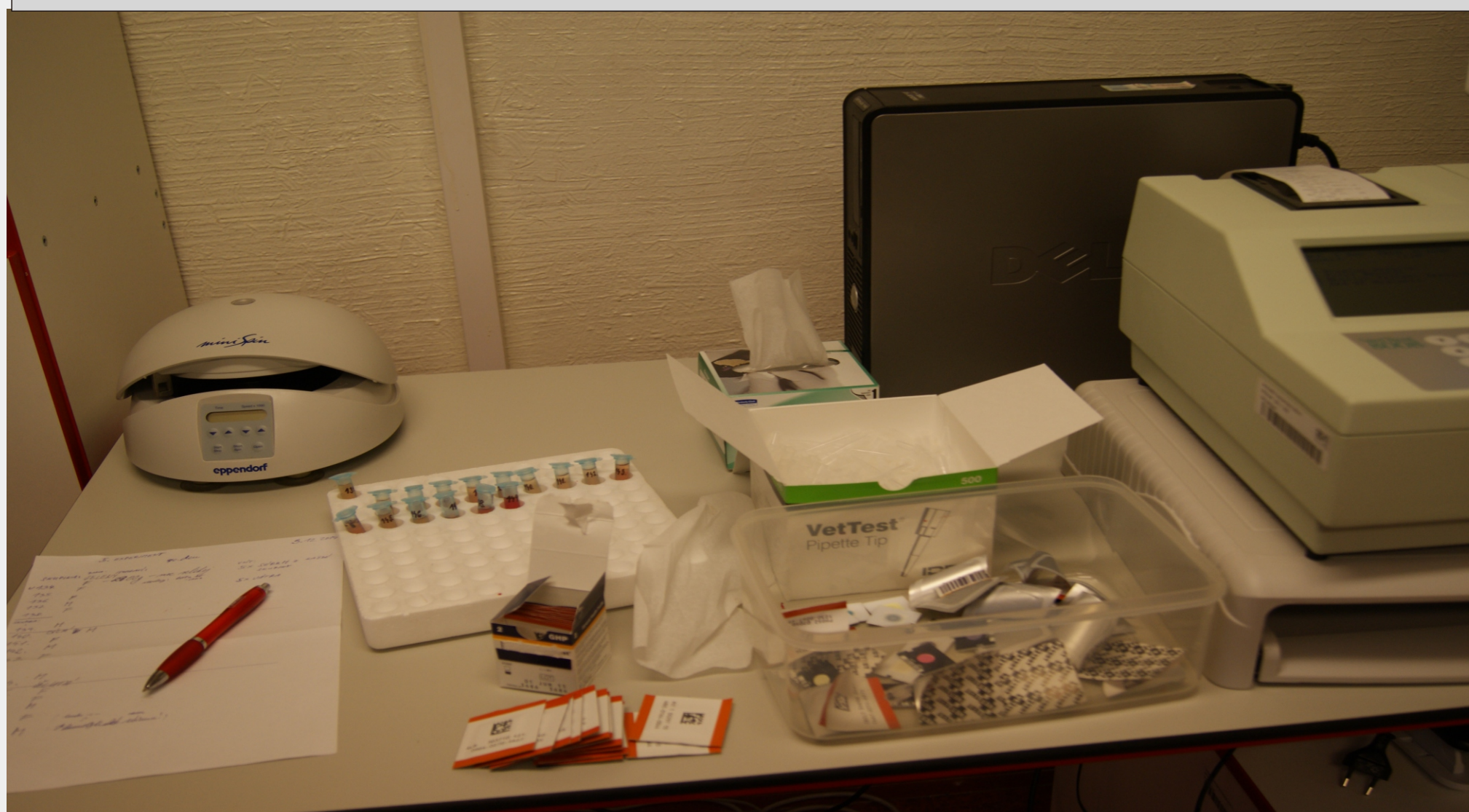


Figure 4: VetTest Analyzer (IDEXX Laboratories, Cymedica)

Conclusion

Indicated that 1% non fermented milk thistle extract supplemented in the feed ration for broiler rabbits could not be a suitable supplement to improve the rabbits performance. However, 0.5% fermented milk thistle could be used to improve carcass performance. The Projects were supported by IGA FTA CULS Prague: 20145028 and 20165013