

Effects of *Saccharomyces cerevisiae* Supplementation on Growth Performance and Meat Quality in Broiler Chickens

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적 요

Saccharomyces cerevisiae(SC)가 육계의 성장능력과 육질 개선효과가 있는지 알아보기 위하여 2회의 사양시험을 수행하였다. 실험1에서는 갓 부화한 160수의 수컷 병아리를 두 처리로 나눈 후에, 각각 0 %와 3.0 %의 SC를 함유한 사료를 5주간 급여하였다. 실험2에서는 240수의 수컷 병아리를 4처리로 나눈 후, 각각 0, 0.3, 1.0 및 3.0 %의 SC를 역시 5주간 급여하였다.

실험1에서는 SC 급여구는 무급여구에 비하여 체중이 무거운 경향을 보였으나 유의성은 없었다($P>0.05$). 실험2에서는 SC 급여수준이 증가함에 따라 체중과 사료섭취량이 유의하게 증가하였다(linear $P<0.05$). 실험1에서 SC 첨가는 다리근육(drumstick)의 전단력을 유의하게 감소시켰으나, 삶은 다리근육에서는 이러한 효과가 관찰되지 않았다. 실험2에서는 흉근과 대퇴근 및 다리근육 및 피부의 산화 안정성은 SC 첨가에 의하여 유의하게 개선되었다.

(Key words : *Saccharomyces cerevisiae*, 육계, 성장능력, 육질, 산화안정성)

Introduction

Saccharomyces cerevisiae(SC), one of the most widely commercialized yeast, has long been fed to animals. Results of earlier chicken studies with yeast, however, were not consistent(Madriqal *et al.*, 1993 ; Kanat and Calialar, 1996). In addition to growth performance, there are literature data showing that enrichment of diets with yeast could favorably improve broiler meat quality. The effect of yeast supplementation on meat quality and oxidative stability of chicken meat was not extensively studied. Thus, the present study was conducted to evaluate the effects of SC on growth performance and meat quality of broiler chickens.

Materials and Methods

In Experiment 1, 160 d-old male broiler chicks were randomly allotted to a control diet(SC 0 %) and a diet added with 3.0 % SC were used(8 pens with 10 chicks per pen). In Experiment 2, 240 d-old male broiler chicks were randomly allotted to 4 dietary treatments(6 pens with 10 chicks per pen), 3 levels of SC were added to the control diet to reach 0.3, 1.0, or 3.0 % in diets, respectively.

at expense of soybean meal.

At the termination of the 5-wk feeding trials, meat and skin samples were collected, and various meat qualities including the oxidative stability were determined. Data were subjected to one-way ANOVA in Experiment 1 and 2, and polynomial contrasts used to test the effect of graded levels of SC in a dose-response way in Experiment 2. The level of statistical significance was pre-set at $P<0.05$.

Results

In Experiment 1, BW gains tended to be higher ($P<0.06$) in SC-fed chickens than the control. In Experiment 2, BW gains of broiler chickens increased (linear $P<0.05$) during either 0-3 or 0-5 wk of age. A linear effect ($P<0.05$) of SC supplementation on feed intake during either 4-5 wk or 0-5 wk of age was also monitored. In Experiment 1, dietary SC significantly lowered shear force in drumstick. In Experiment 2, addition of SC into the control diet significantly lowered shear force in raw breast (linear and cubic $P<0.05$), thigh meat (linear $P<0.05$). A linear effect ($P<0.05$) by SC supplementation on cooking loss of thigh meat was observed in Experiment 2. In Experiments 1 and 2, the oxidative stability of breast, thigh, drumstick meats, and skin samples from broiler chickens fed SC improved when compared to the control, especially in skin samples.

Table 1. Effect of dietary supplemental SC on performance of broiler chicks

SC content(%)	Weight gain(g)			Feed intake(g)			Feed/gain		
	0-3	4-5	0-5	0-3	4-5	0-5	0-3	4-5	0-5
Experiment 1									
0.0	572	950	1522	931	1777	2708	1.63	1.87	1.78
3.0	590	993*	1583	934	1766	2701	1.59	1.78	1.71
Experiment 2									
0.0	604	801	1405	1073	1482	2556	1.78	1.86	1.82
0.3	631	866	1498	1081	1511	2594	1.72	1.75	1.73
1.0	654	860	1515	1085	1561	2644	1.67	1.82	1.75
3.0	689	863	1553	1120	1560	2685	1.64	1.82	1.73
Pool SE	17.1	22.3	28.2	30.1	22.3	41.6	0.065	0.029	0.034
Significance**	$P<0.05$	NS	$P<0.05$	NS	$P<0.05$	$P<0.05$	NS	NS	NS

* $P<0.06$ / ** polynomial contrast(linear)

References

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