

## The Effect of Utilization of Different Levels of *Saccharomysec cerevisiae* on Broiler Chicken's Performance

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**Abstract:** An experiment in a completely randomized design with 5 treatments (0, 0.5, 0.1, 0.15 and 0.2 percent), 4 replicates and each replicate included 20 male chicks of strain, "Ross 308" was used. The experimental diets fed at three different breeding periods (starter, grower and finisher) and using tables to nutrient requirement of poultry (NRC1994) were arranged and prepared. At the age of 49 day, one bird from each replicate was selected, slaughtered and then the carcass characteristics (carcass, leg, breast, liver and heart percentages) were measured. The results showed that feed intake, live weight and weight gain in experimental groups containing yeast starter courses, growth and the entire final period was observed ( $p < 0.05$ ). Conversion ratio in the experimental group 0.1 per cent better than the control yeast and other treatments but was not statistically significant. Carcass, thigh and chest affected did not use yeast. But the percentage of liver, heart, abdominal fat and Gizzard and losses influence of yeast were used ( $p < 0.05$ ). The results showed that yeast *Saccharomysec cerevisiae* have significant effect on performance and carcass traits at a level 0.2 per cent yeast in comparison with other more appropriate levels and with regard to weight gain and feed conversion ratio in the diet and ultimately lead to increased economic profit margins are.

**Key words:** Blood factors % Broiler chicken % Performance % *Saccharomysec cerevisiae*

### INTRODUCTION

Using probiotics (Direct Fed Microbe) instead of Antibiotics had has interesting results in birds production [1]. Besides using bacterial production as probiotics, yeast is applying in birds fed in pro biotic form. *Saccharomysec cerevisiae* which is famous as baking yeast has very biologic value and B-complex Vitamin in itself [2].

Onifade *et al.* [3] compared effect of *Saccharomysec cerevisiae* and antibiotics with diets feed including low proteins and high fibers in feeding broiler chicken. They reported that using yeast and antibiotics improve feed conversion ratio, body weight, feed consumption and caracass & breast weight in contrast with evident group. Celk *et al.* [4]. Reported that using live *Saccharomysec cerevisiae* (0.2 percentages) meaningfully increase food consumption during 5 weeks and also body weight in 37 days of life. Santin *et al.* [5] indicateed that using *Saccharomysec cerevisiae* from 7<sup>th</sup> day improve weight of broiler chickens.

Bradly [6] reported that adding *Saccharomysec cerevisiae* to bird's diet create some cultural changes in their ileum morphology.

Today, it is clear that using yeast in animal's diet have useful effect. Therefore, in recent years, researchers have more attention in controlling malady by probiotics to improve increasing weight, feed conversion ratio, decreasing mortality in broiler chicken, protecting chickens against pathogenic factors by creating colony in digestion system, improving performance, adaption of antibacterial with probiotic, avoiding creation of strength lineage of bacteria.

The present investigation was carried out to the effect of utilization of different and determine best levels of *saccharomysec cerevisiae* on broiler chicken's.

### MATERIALS AND METHODS

An experiment in a completely randomized design with 5 treatments (0, 0.5, 0.1, 0.15 and 0.2 percent), 4 replicates and each replicate included 20 male chicks of strain, "Ross 308" was used in 49 days.

Table 1: Analysis of nutrient material in testing portion of different period of growing Nutrient analysis

| Analysis of nutrient material | Starter | Grower  | Finisher |
|-------------------------------|---------|---------|----------|
| ME, kcal/kg                   | 2900.00 | 2950.00 | 3050.00  |
| Crude protein, %              | 21.00   | 20.50   | 19.00    |
| Calcium, %                    | 0.94    | 0.87    | 0.78     |
| P available, %                | 0.42    | 0.38    | 0.34     |
| Methionine, %                 | 0.52    | 0.48    | 0.50     |
| Lysine, %                     | 1.30    | 1.10    | 1.10     |
| Methionine + cystine, %       | 1.03    | 0.92    | 0.84     |
| Tro                           | 0.80    | 0.76    | 0.71     |

Adjustment and supplying food diets is perform by UFFDA programming and is balances in nutrients materials. Food portion in test were in 3 different periods of growing which are starting period (0-21 days), growing period (21-35 days), finisher period (35-49 days) and are supplied by table of birds fed need [7] and applied for chickens.

*Saccharomysec cerevisiae* applies in lineage SC<sup>47</sup> and is made by France Co of Lesafer and its commercial name is Bayosof. This yeast is as small granules with cream color and with amount of 8×10<sup>9</sup> CFU/g).

In day of 49 and after final weighting, one piece of bird were randomly selected. After installing Feet No, for discharging digestion system, they will not feed for 12 hours and then weight them again and will remove their feather in dry method. Then legs head and inside of abdomen will be separated and quarry specs will be under investigation.

Finally, data will be analyzed and variance by SAS software [8] and average data will be compared by multi tolerance test of Donken [9] in probability level of 5 personages.

## RESULTS AND DISCUSSION

Regarding Table 2 in starting, growing and final period, using yeast created a meaningful differences in increasing daily weight (p<0.05) and caused increase of daily weight in all periods. This effect is for competition between desired bacteria with microbial Flore in digestion system. These results are accordance with findings of Onifade *et al.* [3], Celk *et al.* [4], Zhung *et al.* [10], Nazer Adl and sufi Siyavash [11] and Ghasemi *et al.* [12].

Also, results show that *Saccharomysec cerevisiae* make meaningful differences on converting coefficient of food between cares of starting periods (p<0.05). But, in grower and finisher period and total, there is no meaningful effect. It can be understand that yeast will improve food by increasing digesting ability and this is accordance with findings of Onifade *et al.* [3] and Ghasemi *et al.* [12].

The lowest victims are related to 0.2% yeast and the highest one is related to control group (p<0.05). Therefore *Saccharomysec cerevisiae* has a meaningful effect on amount of victims. The reason for decreasing victims in yeast is for decreasing pathogenesis microorganism like *E. coli* and increases or improves of safety system by yeast. So, results are accordance with findings of Karman *et al.* [13].

Table 2: Effect of using Saccharomysec Cerevisiae on broiler chicken performance

| Parameter             | Period   | Treatment          |                     |                     |                     |                    | SE    | P. Value |
|-----------------------|----------|--------------------|---------------------|---------------------|---------------------|--------------------|-------|----------|
|                       |          | 0                  | 0.5                 | 1                   | 1.5                 | 2                  |       |          |
| Weight gain           | Starter  | 0.265 <sup>b</sup> | 0.265 <sup>b</sup>  | 0.280 <sup>b</sup>  | 0.280 <sup>a</sup>  | 0.288 <sup>a</sup> | 0.004 | *        |
|                       | Grower   | 0.635 <sup>c</sup> | 0.647 <sup>bc</sup> | 0.660 <sup>b</sup>  | 0.665 <sup>b</sup>  | 0.685 <sup>a</sup> | 0.007 | *        |
|                       | Finisher | 1.203 <sup>c</sup> | 1.238 <sup>c</sup>  | 1.303 <sup>b</sup>  | 1.333 <sup>b</sup>  | 1.423 <sup>a</sup> | 0.021 | *        |
|                       | Total    | 2.100 <sup>c</sup> | 2.150 <sup>c</sup>  | 2.248 <sup>b</sup>  | 2.270 <sup>b</sup>  | 2.393 <sup>a</sup> | 0.021 | *        |
| Feed consumption      | Starter  | 0.353 <sup>c</sup> | 0.363 <sup>b</sup>  | 0.370 <sup>b</sup>  | 0.373 <sup>b</sup>  | 0.403 <sup>a</sup> | 0.003 | *        |
|                       | Grower   | 1.035 <sup>c</sup> | 1.045 <sup>c</sup>  | 1.085 <sup>b</sup>  | 1.098 <sup>b</sup>  | 1.145 <sup>a</sup> | 0.009 | *        |
|                       | Finisher | 2.605 <sup>c</sup> | 2.795 <sup>bc</sup> | 2.903 <sup>ab</sup> | 2.905 <sup>ab</sup> | 2.113 <sup>a</sup> | 0.070 | *        |
|                       | Total    | 4.148 <sup>c</sup> | 4.203 <sup>c</sup>  | 4.363 <sup>bc</sup> | 4.493 <sup>ab</sup> | 4.658 <sup>a</sup> | 0.072 | *        |
| Body weight           | Starter  | 0.303 <sup>b</sup> | 0.302 <sup>b</sup>  | 0.318 <sup>a</sup>  | 0.320 <sup>a</sup>  | 0.325 <sup>a</sup> | 0.003 | *        |
|                       | Grower   | 0.942 <sup>c</sup> | 0.947 <sup>c</sup>  | 0.987 <sup>b</sup>  | 0.989 <sup>b</sup>  | 1.005 <sup>a</sup> | 0.004 | *        |
|                       | Finisher | 2.185 <sup>c</sup> | 2.198 <sup>c</sup>  | 2.295 <sup>b</sup>  | 2.295 <sup>b</sup>  | 2.418 <sup>a</sup> | 0.011 | *        |
| Feed conversion ratio | Starter  | 1.330 <sup>b</sup> | 1.369 <sup>ab</sup> | 1.321 <sup>b</sup>  | 1.332 <sup>b</sup>  | 1.402 <sup>a</sup> | 0.016 | *        |
|                       | Grower   | 1.630 <sup>a</sup> | 1.614 <sup>a</sup>  | 1.644 <sup>a</sup>  | 1.650 <sup>a</sup>  | 1.671 <sup>a</sup> | 0.067 | N.S      |
|                       | Finisher | 2.179 <sup>a</sup> | 2.258 <sup>a</sup>  | 2.228 <sup>a</sup>  | 2.182 <sup>a</sup>  | 2.188 <sup>a</sup> | 0.141 | N.S      |
|                       | Total    | 1.977 <sup>a</sup> | 1.955 <sup>a</sup>  | 1.941 <sup>a</sup>  | 1.980 <sup>a</sup>  | 1.946 <sup>a</sup> | 0.098 | N.S      |
| Mortality             | Total    | 10 <sup>a</sup>    | 6.25 <sup>ab</sup>  | 3.75 <sup>b</sup>   | 3.75 <sup>b</sup>   | 2.5 <sup>b</sup>   | 0.035 | *        |

Table 3: Effect of using *Saccharomyces Cerevisiae* on carcass specs of broiler chicken

| Parameter         | Treatment           |                     |                      |                      |                     | SE     | P. Value |
|-------------------|---------------------|---------------------|----------------------|----------------------|---------------------|--------|----------|
|                   | 0                   | 0.5                 | 1                    | 1.5                  | 2                   |        |          |
| Caracass (%)      | 67.210 <sup>b</sup> | 67.485 <sup>b</sup> | 67.735 <sup>ab</sup> | 68.385 <sup>ab</sup> | 69.135 <sup>a</sup> | 0.3310 | N.S      |
| Leg (%)           | 24.777 <sup>a</sup> | 26.993 <sup>a</sup> | 27.490 <sup>a</sup>  | 27.724 <sup>a</sup>  | 28.557 <sup>a</sup> | 1.2500 | N.S      |
| Breast (%)        | 30.226 <sup>a</sup> | 31.594 <sup>a</sup> | 32.638 <sup>a</sup>  | 33.033 <sup>a</sup>  | 33.49 <sup>a</sup>  | 1.4000 | N.S      |
| Liver (%)         | 1.961 <sup>c</sup>  | 2.128 <sup>d</sup>  | 2.185 <sup>c</sup>   | 2.306 <sup>b</sup>   | 2.571 <sup>a</sup>  | 0.0160 | *        |
| Gizzard (%)       | 1.384 <sup>d</sup>  | 1.453 <sup>c</sup>  | 1.521 <sup>b</sup>   | 1.523 <sup>b</sup>   | 1.614 <sup>a</sup>  | 0.0110 | *        |
| Heart (%)         | 0.444 <sup>c</sup>  | 0.455 <sup>c</sup>  | 0.458 <sup>c</sup>   | 0.479 <sup>c</sup>   | 0.512 <sup>a</sup>  | 0.0070 | *        |
| Abdominal fat (%) | 2.508 <sup>a</sup>  | 2.494 <sup>ab</sup> | 1.959 <sup>b</sup>   | 1.752 <sup>b</sup>   | 1.743 <sup>b</sup>  | 0.0001 | *        |

Also, in starting, growing, final and all periods, using yeast will make meaningful difference on consuming food average ( $p < 0.05$ ). It could be understood that yeast can supply food needs of bird and increasing consumption of food by digesting and attracting nutrient materials which is accordance with results of Onifade *et al.* [3] and Celk *et al.* [4], Santin *et al.* [5] and Kumprechtova *et al.* [14].

As indicated in Table 3, the most output is related to carcass, leg and breast with care of 0.2 percentage of yeast and the lowest output is related to quarry, leg, breast of control cares. By statically, there is no meaningful difference. It seems that applied yeast in this test was by discharging some special materials and affect on metabolism of nutrient materials will increase output of quarry and weight of leg and breast. These results are accordance with findings of Onifade *et al.* [3] but are not accordance with findings of Santin *et al.* [5], Zhung *et al.* [10] and Yalsinkaya *et al.* [15]. This incoherence may be for consuming level or kind of applied yeast.

Also, results show that adding *Saccharomyces cerevisiae* Yeast have a meaningful effect of liver, heart and Gizzard percentage. The most increase of liver, heart and Gizzard weight and the lowest victims was related to 0.2 percentage yeast, the lowest decrease of weight was related to evident group. Therefore digesting and attracting nutrient materials will be improved by using yeast in increasing weight and size of digestion system's organs which is accordance with findings of Kahraman *et al.* [13] Yalsinkaya *et al.* [15] and Hoseini *et al.* [16].

In conclusion, the results of this study showed that *Saccharomyces cerevisiae* has a meaningful effect on performance and specs of carcass and level 0.2% yeast is more suitable than others and will economize food portion and increase interest.

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