



# Effect of probiotic microbial culture from maize steep in drinking water of broiler chickens

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## Introduction

Direct feeding of beneficial microorganisms to broilers is strategic for antibiotic replacement in their production.

This study evaluates effect of direct inclusion of probiotic microorganisms isolated from maize steep into drinking water of broilers.

## Materials and Methods

**Bacillus subtilis**, *Lactobacillus fermentum* and *Saccharomyces cerevisiae* were isolated from fermented maize steep and directly included either singly or in various combinations into drinking water of broilers as probiotic source for six weeks.

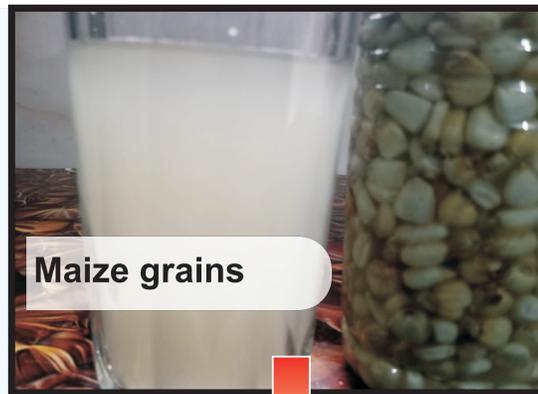
192 day-old broiler chicks of Arbor Acre strain randomly divided into eight experimental treatments.

Performance, nutrient retention, blood, gut microbial, and carcass parameters were measured.

Data subjected to one way analysis of variance in a completely randomized design SAS (2003).

## Experimental treatments

<b>C</b>	→ Control - Ordinary drinking water
<b>L</b>	→ Water + <i>Lactobacillus fermentum</i>
<b>B</b>	→ Water + <i>Bacillus subtilis</i>
<b>S</b>	→ Water + <i>Saccharomyces cerevisiae</i>
<b>LB</b>	→ Water + L + B
<b>LS</b>	→ Water + L + S
<b>BS</b>	→ Water + B + S
<b>LBS</b>	→ Water + L + B + S



## Results

- Average daily feed intake values were significantly ( $p < 0.05$ ) higher for birds on drinking water with various combinations of microbial culture (LB, LS, BS, LBS) compared to birds on inclusion of single microbial culture and control groups (L, B, S, C).
- Only total protein of all biochemical indices assessed was significantly ( $p < 0.05$ ) influenced. Highest value

## Results cont'd

observed in birds on treatment with combination of microorganisms (LB).

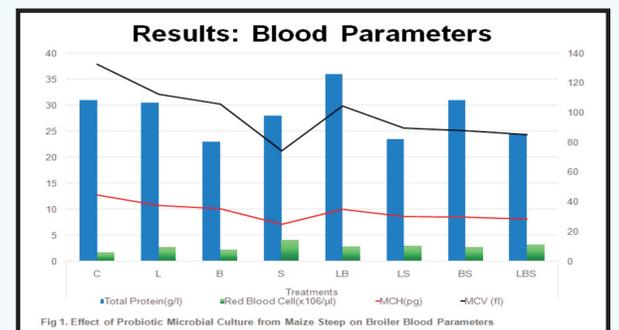
- Blood parameters (RBC, MCH and MCV) for birds on experimental treatments were significantly influenced.
- Wing yield in groups LB, L, LS and LBS were higher ( $p < 0.05$ ) compared to other treatment groups but similar to control group.

Tab.1 Effect of direct inclusion of isolated microbial culture from maize steep on performance and carcass (primal) cut in broilers

Treatments	Average daily feed intake (g/ bird/day)	Wing (% Live body weight)
C	70.80 <sup>b</sup>	8.04 <sup>b</sup>
L	70.68 <sup>b</sup>	8.33 <sup>a</sup>
B	70.48 <sup>b</sup>	7.52 <sup>bc</sup>
S	70.49 <sup>b</sup>	7.29 <sup>c</sup>
LB	72.23 <sup>a</sup>	8.44 <sup>a</sup>
LS	73.14 <sup>a</sup>	8.25 <sup>a</sup>
BS	72.02 <sup>ab</sup>	7.54 <sup>bc</sup>
LBS	72.40 <sup>a</sup>	8.13 <sup>ab</sup>
± SEM	0.88	0.43

C; Control-Ordinary drinking water, L; water with *Lactobacillus fermentum*, B; water with *Bacillus subtilis*, S; water with *Saccharomyces cerevisiae*, LB; water with L+B, LS; water with L+S, BS; water with B+S, LBS; water with L+B+S, SEM: Standard Error of Mean.

\*Coloured figures denotes significantly higher values



## Conclusions

- There seemed to be a synergism when the microorganisms were combined compared to including them singly in broiler drinking water thus positive influence was noted specifically on average daily feed intake (ADFI), blood total protein, RBC and yield of wing in birds.
- There was no adverse effect of the probiotic microbial culture on broiler chickens.

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