

determined on a 40 days period, in days 0, 15, 25, 30, 35, 40. Initial TVC (day 0) was  $3.84 \pm 0.29 \log_{10}$  cfu/g, while in last storage day (day 40) was  $8.23 \pm 0.25 \log_{10}$  cfu/g. Maximum admissible charge was over-passed in day 35 ( $7.47 \pm 0.21 \log_{10}$  cfu/g). Weren't found *Salmonella*, *S. aureus*, *E. coli*, in none of samples. From statistical point of view were recorded differences ( $p < 0.001$ ).

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### Antiproliferative effects of *Lactobacillus casei* ATCC 393 against colon carcinoma



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Probiotic lactic acid bacteria (LAB) show strain-specific beneficial effects and have gained considerable interest in biotechnology as key microorganisms in probiotic foods. The present study investigated the antiproliferative activity of *Lactobacillus casei* ATCC 393 against colon carcinoma. Co-incubation of live *L. casei* with colon cancer cells exhibits a notable growth-inhibitory effect in a time and concentration dependent manner. Acetic and lactic acid, the main metabolic products of the specific strain, also showed significant antiproliferative activity *in vitro*. In addition, studies on a murine experimental tumor model also resulted in a significant tumor growth inhibition in mice following oral administration of  $10^9$  live *L. casei*. Thus, *Lactobacillus casei* ATCC 393 emerges as a potential biotherapeutic agent against colon carcinoma, implying that the use of this probiotic strain in dietary intervention programs and functional foods may hold promise.

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### Effect of Cr Pic supplementation in layers' diet enriched with Omega-3 fatty acids, on productive performances and egg quality traits



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An experimental study of four weeks was conducted on one hundred eighty-four caged Lohmann Brown hens (49 weeks) which were randomly allocated to four dietary treatments (46 hens/treatment). The control diet (C) was based on a corn and soy-bean meal; E1 group included flaxseed meal (5%) and camelina meal (2%), which are omega 3 rich sources; E2 had the same basal diet as C group and 150 ppb CrPic in premix; E3 had the same basal diet as E1 group and 150 ppb CrPic in premix. Egg weight was significantly higher ( $P \leq 0.05$ ) to C compare to other experimental groups, but yolk weight to C group was significantly ( $P \leq 0.05$ ) lower compare to other 3 groups. Eggshell thickness and eggshell breaking strength was not influenced by the presence of omega 3 acids, nor by CrPic inclusion. Egg production on E1 ( $86.5 \pm 3.3\%$ ) was negatively influenced by the dietary presence of omega 3 fatty acids, but the presence of CrPic in E3 diet determined a similar egg production ( $93.3 \pm 5.3\%$ ) with C group ( $93.6 \pm 3.3\%$ ). On the other hand, CrPic inclusion in E2 and E3 groups determined a significantly ( $P \leq 0.05$ ) lower egg weight (E2:  $64.3 \pm 0.7$  g; E3:  $64.0 \pm 0.5$  g) compare with the groups without CrPic supplement (C:  $65.93 \pm 0.5$  g; E1:  $65.0 \pm 0.6$  g). Analysis of litter collected during the experiment showed that Cr III concentration registered no difference between the treatment groups.

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### Assessments about internal and external quality of eggs for consumption from free range and conventional system



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A complete food from a functional perspective, hen egg is an excellent daily protein intake for consumption.

Purpose of this paper is to assess the internal and external egg quality in terms of physical indicators. We used a total of 30 eggs collected from Lohmann Brown laying hens, 72 weeks old, conventional and free range; which were divided in 2 batches: 15 eggs from free range system (FR) and 15 eggs from improved battery