Dietary whole rice bran containing phytic acid prevents chicken meat lipid oxidation

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Phytic acid has a high chelating ability for polyvalent metal ions and has effective antioxidant effect in foods systems. Rice bran contains about 7.0% of phytic acid and therefore has great antioxidant potential. The aim of this work was to investigate the effect of dietary of whole rice bran (WRB) and rice bran lower phytic acid contents (LRB) on chicken meat quality. The broilers diet (n=260) were divided into five treatments: Control treatment (CT), diet with addition of 5% WRB (WRB5), 10% WRB (WRB10), 5% LRB (LRB5) and with 10% LRB (LRB10). The broilers received this diet at the termination phase (7 days before slaughter). 24h post mortem breast meat (Pectoralis major) samples were analyzed for color (L*, a*, b*) and pH. Lipid oxidation and warmed-over flavor (WOF) measured by thiobarbituric-acid-reactive substances (TBARS) were evaluated after 1 day in samples stored at 4°C and 30, 60 and 90 days at -18°C. Tukey test was used to determine significant difference. Color attributes and pH did not differ significantly (p≤0.05) among treatments. There was no difference for lipid oxidation among treatments at 4°C samples. However the rancidity was inhibited about 60%, 42% and 33% with WRB5 and 49%, 38% and 33% with WBR10 in comparison to the CT (p≤0.05) in samples stored at -18°C for 30, 60 and 90 days, respectively. The WOF was lower in samples of WRB10 in comparison to the other treatments (p≤0.05). In conclusion, the dietary containing WRB prevents lipid oxidation and WOF in poultry meat.