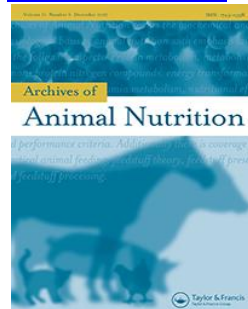


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### Original Articles

## Safety assessment of BT 176 Maize in broiler nutrition: Degradation of Maize-DNA and its metabolic fate

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Insect resistant Bt 176 maize has been developed by genetic modification to resist European borer infection. In the present investigation, the experiment was conducted to determine the effect of feeding a new hybrid of Bt 176 maize (NX 6262 - Bt 176) on general health condition and performance of broiler chickens. Maize grains and diets were subjected to proximate analysis. Amino and fatty acids investigation were applied for both maize grains before used. To evaluate the degradation of NX 6262 - Bt 176 maize DNA and its metabolic fate in broiler blood, muscles and organs. One-day-old male broilers were fed *ad libitum* on either an experimental diet containing NX 6262 - Bt 176 or a control diet containing the non-modified maize grains for 35 days. Feed consumption and body weight were recorded weekly during the experimental period. All chickens were subjected to nutritional evaluation period at day 20 of age for 5 successive days, to calculate the percentage of apparent digestible nutrients in both diets. At day 35 samples were collected at several intervals after feed withdrawal. Prior to slaughter blood samples were collected from all birds by heart puncture to prevent DNA cross contamination. Samples from pectoral and thigh muscles, liver, spleen, kidney, heart muscle, bursa and thymus glands were collected. Digesta from different sections of the gastrointestinal tract (GIT) were collected as well. Packed cell volume (PCV) and some serum parameters were investigated. There were no significant differences between control and experimental group concerning chemical composition of feeds, apparent digestible nutrients, and all performance parameters measured ( $P > 0.05$ ). Furthermore, there were no differences in the PCV and the analysed serum parameters between the control and experimental group. The results of maize DNA digestibility showed that the new variety takes the normal physiological passage along broiler GIT similar to the conventional line. In addition, Bt 176 maize DNA appears to be partially degraded in different parts of GIT comparable to the DNA of the control maize line. Results of the metabolic fate of maize DNA in broiler blood, muscles and organs indicated that only short DNA fragments (199 bp) derived from the plant *chloroplast* gene could be detected in the blood, skeletal muscles, liver, spleen and kidney, which disappeared after prolongation the fasting time. In heart muscle, bursa of Fabricius and thymus, no plant chloroplast DNA was found. Bt gene specific constructs from Bt 176 maize were not detected in any investigated blood or tissue samples.

Keywords: [Transgenic Plants](#), [Maize](#), [Broiler Performance](#), [Digestion](#), [Direct Dna Uptake](#)