C-030

Sensory acceptability of rabbit meat patties manufactured with increasing levels of rooibos (*Aspalathus linearis*) tea extract

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Rooibos (*Aspalathus linearis*) tea extract is a South African leguminous shrub. Recently, it exhibited interesting potential to increase the shelf-life of meat and meat products mainly by lowering their lipid oxidation rate. However, sensory acceptability of the final product still needs to be evaluated. The study tested the sensory attributes and acceptability of rabbit meat patties manufactured with increasing levels of fermented rooibos tea extract. With this purpose 16 kg of rabbit meat were used. Meat was divided in four batches, and manually mixed with different rooibos inclusion levels: Control (0%), R1 (0.5%), R2 (1%) and R3 (2%). Subsequently, meat patties were stored under refrigerated conditions (+4°C) until cooking in a water bath for 25 min at 80 °C (n=20 patties/treatment). Afterwards, an eight members trained panel carried out a ranking test during which each sample was evaluated by two different assessors. Ranked sensory attributes data were computed with a Friedman's two-way non-parametric ANOVA. The type and frequency of perceived off-flavours were evaluated by a chi-square test. As expected, increasing levels of rooibos extract determined a greater coloration of rabbit meat patties ($P<0.001$) which adversely affected general visual acceptability of the product when rooibos inclusion level exceeded 1% (13.6 and 15.1 *vs.* 8.7 and 5.5 for C, R1, R2 and R3, respectively; $P<0.001$). Higher rooibos percentages raised aroma intensity as well as rooibos aroma perception and lowered rabbit aroma (6.5 *vs.* 17.5 for R1 and R3, respectively; $P<0.0001$). The 1% and 2% rooibos inclusion level also reduced aroma general acceptability (14.7 and 15.2 *vs.* 9.3 and 3.8 for C, R1, R2 and R3, respectively; $P<0.001$) with rooibos presence being identified as an off-flavour. This was confirmed also by the frequency of perceived off-flavours which exhibited greater percentages for R2 and R3 treatments compared to C and R1 groups which showed similar scores. This was particularly true for rancid ($P<0.001$), rooibos ($P<0.0001$) and acid ($P<0.05$) off-flavours. Rooibos inclusion reduced the juiciness of rabbit meat patties when its incorporation exceeded 0.5% ($P<0.001$). Interestingly, a rooibos inclusion of 0.5% guaranteed the same general product acceptability of the C rabbit meat patties, thus confirming the potentiality of this plant to be successfully used also in the meat sector as a natural additive.

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No detection of transgenic DNA (tDNA) in tissues from rabbits fed with genetically modified soy-bean meal

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Several studies investigated the presence of DNA from transgenic plants in different animal species but very controversial results are reported. Some studies did not identify any tDNA in tissues from animals fed with transgenic plants, in others tDNA has been found in tissues from different species. The study was aimed at detecting the presence of tDNA in tissues from rabbits fed with genetically modified (GM) soybean meal (RRS, line GTS-40-3-2). Ten New Zealand White male rabbits, coming from a herd where GM soybean is commonly used, were utilized. The animals were slaughtered at 80±5 d of age and at 3.0±0.2 kg of body weight in a slaughterhouse. Blood was withdrawn before slaughtering and samples of liver, kidney, heart, stomach, intestine, muscle and adipose tissue were collected from each rabbit. Samples were collected avoiding environmental contamination. Samples of hair and stomach content were collected to evaluate the possible presence of tDNA. Samples of mixed feed containing GM soybean were collected as positive control. From rabbit tissues, the genomic DNA was extracted by using the Isolate II Genomic DNA Kit (Bioline). Genomic DNA from feeds, stomach content and hair, was extracted by using the Plant/Fungi DNA isolation Kit (Norgen Biotek. Corp). A Picogreen dsDNA Kit (Life technologies) was utilized to quantify dsDNA following purification. All samples were monitored, by using the real-time polymerase chain reaction (rt PCR), for oligonucleotide primers and probes specific for the inserts of RRS event GTS 40-3-2 and for the lectin gene reference to generate amplicon sizes of <100 bp. The β-actin gene was used as positive control for rabbit tissues, tDNA of soybean was not detected in all rabbit tissue samples except in the samples of feed, stomach content and hair. Similar results were obtained for the gene reference of lectin. The β-actin gene was detected in all rabbit tissue samples. The absence of soybean tDNA in tissues from rabbits found in the present study represents an important result indicating that feeding animals with GM soy is not risky for animal and human health. The detection of soybean tDNA in rabbit hair, compatible with an environmental contamination, suggests the need to do the maximum attention during samples collection to avoid wrong findings.

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