Meat quality evaluation laboratory

In this laboratory, we study the quality aspects of meat and meat products. Meat quality includes the composition, palatability (appearance, juiciness, tenderness, and flavour), water holding capacity, muscle fibre size, meat pigments and consumer perception. Physical and chemical methods are employed to assess the expected quality of meat and meat products. Hence the research projects are focussed on evaluating the quality characteristics of different meat and meat products. Variation in quality of different meats and meat products are assessed by instrumental methods and chemicals methods. Subjective evaluation like sensory testing is also employed to validate the instrumental and chemical methods of quality evaluation.

Research projects:

1. *Development of technology for extraction, purification and characterization of conjugated linoleic acid in meat industry by-products.*
2. *Meat quality characterization of different genotypes of broilers developed by ----------Farms Pvt.Ltd.*
3. *Evaluation of consumer preference and meat quality characteristics of slow growing and fast growing broiler birds.*
4. *Development of Ozone (O_3) based decontamination technology for poultry and sheep/goat carcasses.*

Major equipment and facilities

1. Texturometer to measure the tenderness and texture profile analysis of meat and meat products
2. Colourimeter to measure the colour properties objectively.
3. Facilities to evaluate the meat quality characters

Major Research achievemtns:

Extraction and quantification of CLA in ruminant fats using UV-Spectroscopic and GC methods

Extraction of CLA was carried out using reagent alcohol (90% ethanol, 5% methanol, 5% isopropanol).The peak absorbance of the extract was measured at 233 nm using a uv-vis spectrophotometer and the absorbance was compared with standard CLA (cis-9, trans-11, 18:2) graph for quantification. For GC-analysis, the extract was concentrated to 1: 10 ratio using N2 concentrator. Methylation of this concentrated extract was carried and 5000 ppm of CLA was sued as an internal standard. Thus obtained FAME extracts were analyzed using Gas chromatography (Agilent J&W HP-88 capillary GC column). Results of uv-vis peak absorbance showed an average CLA content (mg/g) of 1.62 ± 0.02 in goat fat and 2.52 ±0.04 in rendered fat/tallow buffalo. Similarly results of GC analysis showed an average CLA content (mg/g) of 4.31 ± 0.05 in goat fat and 8.31 ±0.04 in rendered fat/tallow buffalo. It was concluded that ruminant meat fats are very good sources of natural CLA, which is being considered as a potential nutraceuticals in the market.

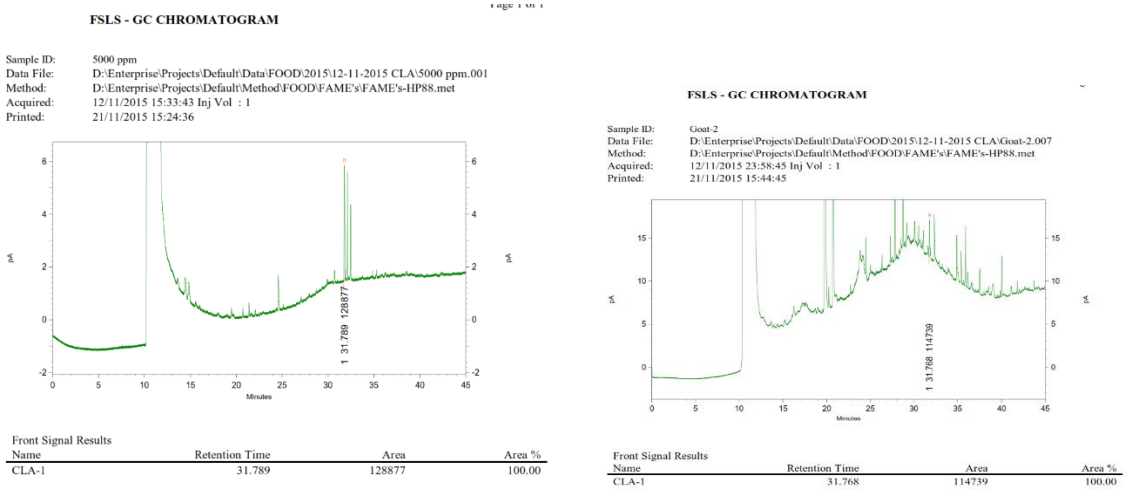

Fig: Gas chromatogram obtained from 5000 ppm standard CLA (cis-9, trans-11, 18:2) and goat meat fat.

Summary of results from the project on "EVALUATION OF CARCASS TRAITS AND MEAT QUALITY CHARACTERISTICS OF ASEEL X BROWN LAYER, BROWN LAYER X COLOURED BROILERS DEVELOPED BY ----------

1. Transportation loss was maximum in commercial broiler (6.7 %) and minimum in Indbro Asseel (4.48 %).
2. The average dressing percentage ranged from 66.4 % in rainbow rooster plus to 72.5% in commercial broilers.
3. Yield of breast meat was maximum in commercial broilers, thigh portion was maximum in rainbow rooster, and drumstick percentage was maximum in Indbro Asseel and wings was maximum in rainbow rooster plus.
4. Bound water was higher in rainbow roosters and commercial broilers and free water was maximum in Aseel birds.
5. Commercial broiler meat was very soft followed by rainbow rooster and Aseel and Indbro Aseel gave a slightly tougher meat as liked by consumers.
6. Muscle fiber diameter was higher in commercial broilers followed by Aseel, Indbro Aseel, rainbow rooster plus and rainbow roosters.
7. Protein content was s higher in Indbro Asseel followed by broiler and rainbow rooster birds.
8. Fat content was lowest in Asseel and highest in broiler and rainbow rooster plus.
9. Asseel and Indbro Asseel meats were darker and red in colour whereas broiler meat was lighter.
10. Colour intensity of Asseel bird's meat was higher than other meats.
11. Sensory evaluation showed breast meat of Asseel and rainbow rooster was more acceptable in terms of colour and flavour to the panellist.
12. Restructured meat products from Aseel birds was darker and yellower than other birds.
13. Overall acceptability of restructured meat product was higher in rainbow rooster plus, Indbro Aseel and lower in broiler birds.