Changes in Headspace flavour composition and quality characteristics of cooked meat product (kavurma)

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In this study, changes in headspace flavour composition and quality characteristics (texture, colour, pH, 2-thiobarbituric acid reactive substance value, and moisture content) of kavurma were followed during processing. Kavurma was produced from beef (cut to about 5x5x5 cm) and sheep tail fat. Table salt (refined and ground), about 2% of meat weight, was added to meat pieces. Tail fat was melted before usage and about 300 g of melted tail fat was added to 1000 g of meat. First of all, about 20% of the total tail fat was added to the salty meat and slow cooking at about 50 °C was started in an open kettle. After that temperature was increased to 120±2 °C, and the remaining melted tail fat was added. The meat was cooked at this temperature for 160 min. Headspace flavour composition was followed by GC-MS equipped with Headspace unit; texture profile was followed by using TA.XT2 Texture Analyzer, and colour by Hunter lab ColorFlex. During the processing of kavurma about 25 flavouring compounds were identified and major compounds were n-butane, n-heptane, n-hexane, n-octane, n-butanal, 3-methylbutanal, n-pentanal, 2,3-pentadione, n-hexanal, heptanal, 3-methyl-1-butanol, and n-octanal. Concentration of n-hexanal, n-butanal, n-octanal, 3-methyl-1-butanol, heptanal, n-pentanal, 3-methylbutanal, n-octane and n-hexane sharply increased from 40 to 60 min of the processing. Hardness, gumminess and chewiness values generally increased (P<0.05) from 2.12 to 45.15 N, from 1.53 to 32.13 and from 1.26 to 21.69 until 140 min of cooking, respectively. Hunter colour values were affected by process time significantly, as redness and yellowness value decreased while lightness values increased during the first 60 min. Lipid oxidation (TBARS values) increased within cooking process from 0.20 mg/kg to 0.71 mg/kg, however, the level of TBARS was lower than those of threshold value of 1 mg/kg. These results indicated that major sensory attributes of kavurma could be developed during the cooking process.