

KUALITAS FISIKOKIMIA, SENSORI DAN KADAR BENZO(A)PIREN SATE DAGING KERBAU DENGAN TEKNIK PEMBAKARAN DAN JENIS BAHAN BAKAR YANG BERBEDA

INTISARI

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Penelitian ini bertujuan untuk mengetahui kualitas fisikokimia (kadar air, protein, lemak, abu, pH, daya ikat air dan TPA), sensori (warna, aroma, rasa, *juiciness* dan daya terima) dan kadar benzo(a)piren pada sate daging kerbau yang dipanggang dengan teknik pembakaran dan jenis bahan bakar yang berbeda. penelitian ini terbagi menjadi dua perlakuan, yaitu teknik pembakaran (pembakaran langsung dan menggunakan pelapis aluminium foil) dan jenis bahan bakar (arang dan gas). Setiap perlakuan dilakukan pengulangan sebanyak tiga kali. Daging kerbau yang digunakan adalah bagian topside. Kualitas fisikokimia dan kadar benzo(a)piren dianalisis menggunakan Rancangan Acak Lengkap pola Faktorial 2x2 (dua teknik pembakaran dan dua jenis bahan bakar). Nilai sensori sate daging kerbau didapatkan melalui pengujian 40 panelis tidak terlatih dan dianalisis menggunakan non parametrik *Friedman*. Berdasarkan hasil penelitian, teknik pembakaran dan jenis bahan bakar berpengaruh nyata ($P < 0,05$) terhadap kadar abu, pH dan aroma sate daging kerbau, namun tidak berpengaruh nyata ($P > 0,05$) terhadap daya ikat air, *hardness*, *chewiness*, *juiciness* dan daya terima. Teknik pembakaran berpengaruh nyata ($P < 0,05$) terhadap kadar air, kadar protein, kadar lemak, warna, rasa. Jenis bahan bakar berpengaruh nyata ($P < 0,05$) terhadap nilai *springiness*, dan *cohesiveness*. Interaksi antara jenis bahan bakar dan teknik pembakaran memberikan pengaruh nyata terhadap kadar air, kadar protein, kadar abu, pH, aroma dan rasa. Tidak ada interaksi yang signifikan antara teknik pembakaran dan jenis bahan bakar terhadap kadar lemak, *cohesiveness*, *springiness*, *chewiness*, *juiciness*, warna dan daya terima. Hasil analisis menunjukkan bahwa kadar benzo(a)piren tidak terdeteksi pada seluruh perlakuan karena berada di bawah batas deteksi alat (0,53 mg/kg) dan jauh dibawah batas maksimum yang di tetapkan BPOM RI sebesar 0,005 mg/kg. Disimpulkan bahwa teknik pembakaran dan jenis bahan bakar memengaruhi kualitas fisikokimia dan sensori sate daging kerbau. Teknik pembakaran langsung dan bahan bakar arang memberikan hasil terbaik dari segi warna, aroma, rasa, dan daya terima. Penggunaan aluminium foil mampu mempertahankan kadar air dan lemak. Kombinasi pembakaran langsung dengan bahan bakar arang menghasilkan mutu terbaik tanpa terdeteksinya senyawa benzo(a)piren.

Kata kunci : Sate daging kerbau, Benzo(a)piren, Fisikokimia, Aluminium foil

PHYSICOCHEMICAL PROPERTIES, SENSORY QUALITY AND BENZO(A)PYREN LEVELS OF BUFFALO MEAT SATAY GRILLED USING DIFFERENT TECHNIQUES AND FUEL TYPES

ABSTRACT

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This study aimed to determine the physicochemical quality (moisture, protein, fat, ash, pH, water-holding capacity, and TPA), sensory characteristics (color, aroma, taste, *juiciness*, and overall acceptability), and benzo(a)pyrene levels in buffalo meat satay grilled using different cooking techniques and fuel types. The study applied two treatments: grilling technique (direct grilling and using aluminum foil) and fuel type (charcoal and gas), with each treatment repeated three times. The buffalo meat used was the topside cut. We analyzed the physicochemical quality and benzo(a)pyrene levels using a 2x2 factorial Completely Randomized Design (two grilling techniques and two fuel types). Sensory evaluation involved 40 untrained panelists and was analyzed using the non-parametric Friedman test. The results showed that both the grilling technique and fuel type significantly ($P < 0.05$) affected the ash content, pH, and aroma of the buffalo meat satay. However, they did not significantly ($P > 0.05$) affect water-holding capacity, hardness, chewiness, *juiciness*, or overall acceptability. The grilling technique significantly ($P < 0.05$) influenced moisture, protein, fat, color, and taste, while fuel type significantly ($P < 0.05$) affected springiness and cohesiveness. Interaction between fuel type and grilling technique significantly affected moisture, protein, ash, pH, color, aroma, and taste. However, it did not significantly affect fat, cohesiveness, springiness, chewiness, *juiciness*, or overall acceptability. Analysis also showed that benzo(a)pyrene was undetectable in all treatments, remaining below the instrument detection limit (0.53 mg/kg) and well below the maximum limit set by BPOM RI of 0.005 mg/kg. It's be concluded that both grilling technique and fuel type influence the physicochemical and sensory quality of buffalo meat satay. Direct grilling with charcoal produced the best results in terms of color, aroma, taste, and overall acceptability, while using aluminum foil helped retain moisture and fat. Combining direct grilling with fuel charcoal achieved the highest quality without detectable benzo(a)pyrene.

Keywords: Buffalo satay, Benzo(a)pyrene, Physicochemical, Aluminium foil