

**KAJIAN TERHADAP KUALITI DAN
KESTABILAN MUTU DARI SEGI
MIKROBIOLOGI PRODUK DAGING
TERPROSES 'RTE' YANG SEDIA UNTUK
DIMAKAN**

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PERPUSTAKAAN
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RINGKASAN EKSEKUTIF

Mutu mikrobiologi dan keberkesanan rawatan ozon ke atas bologna mentah dan bologna masak dinilai berdasarkan pengiraan piring jumlah (aerobik mesofilik), jumlah koliform, koliform najis dan *Escherichia coli*, pengiraan *Salmonella* spp., *Pseudomonas* spp., *Listeria monocytogenes* dan *Staphylococcus aureus*. Kesemua sampel bologna mentah dan sampel bologna masak yang dirawat dengan ozon mengalami pengurangan dalam nilai pengiraan piring jumlah (aerobik mesofilik). Sampel mentah yang didedahkan dengan kepekatan ozon 1.00 ppm selama 2 dan 10 minit mampu mengurangkan mikroorganisma aerobik mesofilik dengan signifikan ($p < 0.05$) sebanyak 1.07 dan 1.10 log cfu/ g masing-masing. Manakala kepekatan ozon 1.00 ppm selama 10 minit mengurangkan koloni mikroorganisma hampir 1 log cfu/ g dengan signifikan ($p < 0.05$) sepanjang tempoh penyimpanan 2 bulan. Sampel bologna mentah juga mengalami pengurangan purata jumlah koliform, koliform najis dan *E. coli* sebanyak 1.21 log MPN/ g dengan signifikan ($p < 0.05$). Pengurangan sebanyak < 0.5 log MPN/ g dengan signifikan ($p < 0.05$) juga dicatatkan untuk bilangan *Salmonella* spp. dan tiada pengurangan signifikan ($p > 0.05$) bagi bilangan *Pseudomonas* spp. dalam sampel mentah. *L. monocytogenes* dan *Staph. aureus* tidak dikesan hadir dalam semua sampel mentah dan masak. Selain itu, ciri fizikokimia pH dan aktiviti air, a_w tidak mengalami perubahan signifikan di antara semua sampel kawalan (0 ppm ozon) dan sampel rawatan ozon (0.20, 1.00 ppm). Akan tetapi sampel masak mengalami perubahan signifikan ($p < 0.05$) untuk pH dan a_w pada bulan 1 tempoh penyimpanan sejuk. Penggunaan ozon sebanyak 1.00 ppm mampu mengurangkan sesetengah mikroorganisma aerobik mesofilik, jumlah koliform, koliform najis dan *E. coli* dengan perbezaan praktikal (~ 1 log cfu/ g atau ≥ 1 log cfu/ g) tetapi tiada pengurangan dengan perbezaan praktikal (< 1 log cfu/ g) untuk mikroorganisma lain seperti *Salmonella* spp. dan *Pseudomonas* spp. Kelas asid lemak yang paling dominan dalam bologna ayam ialah asid lemak monotaktepu, diikuti oleh asid lemak tepu dan asid lemak politatepu. Nisbah asid lemak monotaktepu kepada asid lemak tepu (M/S) dan nisbah asid lemak politatepu kepada asid lemak tepu (P/S) dalam bologna ayam kawalan masing-masing berjalut 1.17-1.58 dan 0.67-0.70. Manakala Nisbah M/S dan nisbah P/S dalam bologna ayam terozon masing-masing berjalut 1.33-1.68 dan 0.75-0.95. Pengozonan pada kepekatan 0.2 ppm selama dua minit tidak mejejaskan jumlah asid lemak dalam bologna tetapi cukup untuk menyebabkan perubahan warna. Keputusan kromatogram gas / spektrometer jisam (GC-MS) menunjukkan tidak terdapat perbezaan signifikan ($P < 0.05$) antara komponen perisa meruap yang diekstrak daripada sampel kawalan dan sampel perlakuan ozon tetapi komponen yang diekstrak berbeza secara bererti ($p < 0.05$) menjelang minggu simpanan yang berlainan. Keputusan pengekstrakan SPME menunjukkan bahawa peratusan puncak komponen terpena (*α -thujene*, *α -pinene*, *1,8-cineole* dan *δ -3-carene*) semakin berkurang bagi sampel kawalan manakala komponen ini semakin bertambah pada sampel perlakuan ozon sepanjang tiga minggu simpanan. Penilaian sensori panel pengguna dan panel terlatih memaparkan sampel perlakuan ozon simpanan tiga minggu dengan perbezaan yang bererti ($p < 0.05$) berbanding sampel lain di mana penyusutan kualiti diperhatikan. Analisis instrumentasi pula menunjukkan bahawa nilai TBA, daya ricih, nilai 'a' dan nilai 'b' sampel meningkat sepanjang tempoh simpanan tiga minggu.

Manakala pH dan nilai 'L' adalah semakin menurun. Walau bagaimanapun, tidak ada perbezaan bererti antara sampel kawalan dengan sampel terozon. Perlakuan ozon didapati mengubah ciri-ciri perisa dan fizikokimia sampel bologna. Di dalam produk salami, glutamin, valin, lysin, fenilalanin, tirosin, histidin dan metionin menurun selepas perlakuan ozon. Kesemua daging salami yang diberi perlakuan selama 7 minit, 10 minit, 15 minit dan kawalan (tanpa perlakuan) menunjukkan pengurangan dalam asid-asid amino selepas bulan pertama dan kedua. Kesan perlakuan ozon ke atas warna daging salami adalah tidak signifikan ($p < 0.05$) dalam kesemua perlakuan kecuali daging salami yang diberi perlakuan ozon selama 15 minit yang menunjukkan kurang nilai kecerahan (L^*) darjah kemerahan (a^*) berbanding kawalan. Warna daging salami terozon dan kawalan berubah secara signifikan ($p < 0.05$) sepanjang masa penyimpanan, di mana nilai L^* dan b^* berkurangan dan nilai a^* bertambah. Perubahan nilai L^* , a^* dan b^* dalam sampel terozon adalah sama dengan sampel kawalan. Oleh itu, perlakuan ozon tidak memberikan perbezaan signifikan ke atas warna daging salami sepanjang penyimpanan. Perlakuan ozon tidak menjejaskan warna salami. Kandungan asid amino seperti glutamin, valin dan lysin juga tidak berubah secara signifikan dari segi kandungan nutrisinya.

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