

## **PENGARUH PENAMBAHAN KOMBINASI *ESSENTIAL OIL* DALAM PAKAN TERHADAP KANDUNGAN ANTIOKSIDAN DAN KUALITAS DAGING BROILER**

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### **INTISARI**

*Essential oil* dari kayu manis, cengkeh dan sereh memiliki senyawa bioaktif utama berupa *eugenol*, *cinnamaldehyde* dan *citral* yang berpotensi meningkatkan kandungan antioksidan dan kualitas daging. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan kombinasi *essential oil* tersaponifikasi kalsium (KEO-SCa) terhadap kualitas fisik dan kimia, kadar glikogen dan asam laktat, serta kandungan antioksidan daging broiler. Total 60 ekor *day old chicken* (DOC) broiler dibagi menjadi tiga perlakuan yang terdiri dari CTRL (pakan basal), KEO-SCa15 (pakan basal+0,15% KEO-SCa), dan KEO-SCa30 (pakan basal+0,3% KEO-SCa). Setiap perlakuan terdiri dari 4 ulangan dengan 5 ekor ayam per ulangan. Pemeliharaan dilakukan selama 35 hari dengan pakan dan minum diberikan secara *ad libitum*. Data dianalisis menggunakan metode rancangan acak lengkap pola searah (*One Way ANOVA*) dan dilanjutkan uji *Duncan Multiple Range Test* (DMRT), perbedaan antar perlakuan ditunjukkan oleh nilai  $p < 0,05$ . Hasil penelitian menunjukkan bahwa penambahan KEO-SCa 0,15% dan 0,30% dalam pakan meningkatkan pH daging setelah 24 jam ( $P < 0,001$ ), tetapi tidak berpengaruh terhadap pH setelah 45 menit ( $P > 0,05$ ). Penambahan KEO-SCa 0,15% dan 0,30% dapat meningkatkan keempukan daging ( $P = 0,001$ ), tetapi tidak berpengaruh terhadap daya ikat air dan susut masak daging ( $P > 0,05$ ). Penambahan mulai 0,15% KEO-SCa dapat meningkatkan nilai *redness* ( $a^*$ ) daging ( $P < 0,001$ ) dan penambahan 0,15% KEO-SCa dapat meningkatkan nilai *lightness* ( $L^*$ ) daging ( $P < 0,001$ ), tetapi penambahan 0,30% KEO-SCa menurunkan nilai *yellowness* ( $b^*$ ) daging ( $P < 0,001$ ). Penambahan 0,15% KEO-SCa meningkatkan kadar air dan kadar abu daging ( $P < 0,001$ ), tetapi tidak berpengaruh terhadap protein kasar dan lemak kasar daging ( $P > 0,05$ ). Penambahan mulai 0,15% KEO-SCa dapat meningkatkan kadar glikogen daging dan menurunkan kadar asam laktat daging ( $P < 0,001$ ). Penambahan mulai 0,15% KEO-SCa dapat menurunkan kadar *malondialdehyde* daging. Berdasarkan hasil penelitian, dapat disimpulkan bahwa penambahan KEO-SCa dengan level 0,15% dalam pakan memiliki tingkat efisiesi paling baik untuk menghasilkan daging dengan kualitas yang paling optimal.

**Kata kunci:** *Feed additive*, *essential oil*, antioksidan, kualitas daging, broiler

## EFFECT OF ADDING *ESSENTIAL OIL* COMBINATION IN FEED ON ANTIOXIDANT CONTENT AND QUALITY OF BROILER MEAT

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### ABSTRACT

The combination of essential oils from cinnamon, cloves, and lemongrass contains major bioactive compounds such as eugenol, cinnamaldehyde, and citral, which have the potential to enhance antioxidant content and meat quality. This study aimed to investigate the effects of adding a combination of calcium-saponified essential oils (KEO-SCa) on the physical and chemical qualities, glycogen and lactic acid content, and antioxidant content of broiler meat. A total of 60 day-old broiler chickens were divided into three treatments consisting of CTRL (basal feed), KEO-SCa15 (basal feed + 0.15% KEO-SCa), and KEO-SCa30 (basal feed + 0.3% KEO-SCa). Each treatment comprised 4 replicates with 5 chickens per replicate. The chickens were raised for 35 days with ad libitum access to feed and water. Data were analyzed using a completely randomized design with a one-way pattern (One Way ANOVA) and further tested using Duncan Multiple Range Test (DMRT), with differences among treatments indicated by  $p$ -values  $< 0.05$ . The results showed that the addition of 0.15% and 0.30% KEO-SCa in feed increased the pH of meat after 24 hours ( $P < 0.001$ ), but had no effect on pH after 45 minutes ( $P > 0.05$ ). The addition of 0.15% and 0.30% KEO-SCa could improve meat tenderness ( $P = 0.001$ ), but had no effect on water holding capacity and cooking loss of meat ( $P > 0.05$ ). Addition starting from 0.15% KEO-SCa could increase the redness ( $a^*$ ) value of meat ( $P < 0.001$ ) and addition 0.15% KEO-SCa could increase the lightness ( $L^*$ ) ( $P < 0.001$ ), but the addition of 0.30% KEO-SCa decreased the yellowness ( $b^*$ ) of meat ( $P < 0.001$ ). The addition of 0.15% KEO-SCa increased the moisture and ash content of meat ( $P < 0.001$ ), but had no effect on crude protein and crude fat content of meat ( $P > 0.05$ ). Addition starting from 0.15% KEO-SCa could increase the glycogen content and decrease the lactic acid content of meat ( $P < 0.001$ ). Addition starting from 0.15% KEO-SCa could reduce the malondialdehyde content of meat. Based on the results, it can be concluded that the addition of KEO-SCa at a level of 0.15% in feed has the most efficient level to produce meat with the most optimal quality.

**Keywords:** Feed additive, essential oil, antioxidant, meat quality, broiler.