

**PENGARUH INJEKSI EMULSI MINYAK BIJI BUNGA MATAHARI
(*Helianthus annuus* L.) TERHADAP KUALITAS FISIK
DAN SENSORIS STEAK DAGING SAPI MELTIQUE**

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INTISARI

Penelitian ini bertujuan untuk mengetahui kualitas fisik dan sensoris daging sapi Peranakan Ongole (PO) yang telah diinjeksikan dengan minyak biji bunga matahari. Emulsi terdiri atas minyak biji bunga matahari, air, dan *isolate soy protein* (ISP). Perlakuan yang diberikan yaitu kontrol positif yaitu daging sapi tanpa injeksi, level injeksi emulsi 55 g dengan perbandingan emulsi 11:50:5W, level injeksi emulsi 82,5 g dengan perbandingan emulsi 1,51:7,50:7,5W, level injeksi emulsi 110 g dengan perbandingan emulsi 21:100:10W, perlakuan kontrol positif yaitu daging *meltique* komersial. Parameter yang diamati yaitu kualitas fisik dan sensoris. Data uji fisik dianalisis dengan variansi Rancangan Acak Lengkap (RAL) pola searah, dilanjutkan dengan uji *Duncans New Multiple Range Test*. Data uji sensoris dianalisis dengan uji *Kruskal-Wallis Test* dilanjutkan dengan uji *Mann-Whithney*. Injeksi emulsi minyak biji bunga matahari memberikan pengaruh nyata ($P < 0,05$) pada uji kualitas fisik dan kualitas sensoris *steak* daging sapi *meltique*. Kualitas fisik terbaik adalah pada level injeksi perlakuan level injeksi emulsi 110 g dengan nilai pH $6,10 \pm 0,17$, daya ikat air $28,55\% \pm 0,67$, tekstur *hardness* $18,22 \text{ N} \pm 0,97$, *cohesiveness* $0,60 \pm 0,01$, *springiness* $0,58 \pm 0,01$, *gumminess* $10,84 \text{ N} \pm 0,57$, *chewiness* $6,26 \text{ N} \pm 0,37$, warna L^* matang $50,70 \pm 0,17$, warna a^* matang $11,91 \pm 0,16$, dan warna b^* matang $14,28 \pm 0,35$. Kualitas sensoris terbaik adalah pada level injeksi level injeksi emulsi 110 g dengan nilai warna $7,05 \pm 0,81$, aroma $6,78 \pm 0,83$, rasa $7,00 \pm 0,82$, tekstur $6,80 \pm 0,76$, dan daya terima $7,15 \pm 0,80$. Kesimpulannya adalah injeksi minyak biji bunga matahari pada daging sapi dengan kualitas fisik dan sensoris terbaik adalah pada perlakuan level injeksi emulsi 110 g, karena dapat meningkatkan nilai pH, tekstur *cohesiveness*, tekstur *springiness*, warna L^* (*lightness*), dan warna b^* (*yellowness*) serta menurunkan daya ikat air, tekstur *hardness*, tekstur *gumminess*, tekstur *chewiness*, dan warna a^* (*redness*), serta menghasilkan kualitas sensoris terbaik.

Kata kunci: *Steak*, daging sapi, *meltique*, minyak biji bunga matahari, emulsi, injeksi, kualitas fisik, kualitas sensoris.

THE EFFECT OF SUNFLOWER SEED OIL EMULSION (*Helianthus annuus* L.) INJECTION ON THE PHYSICAL AND SENSORY QUALITY OF MELTIQUE BEEF STEAK

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ABSTRACT

This study aimed to determine the physical and sensory quality of Peranakan Ongole (PO) beef injected with sunflower seed oil. The emulsion consists of sunflower seed oil, water, and isolated soy protein (ISP). The treatments applied included a positive control (non-injected beef), an emulsion injection level of 55 g with an emulsion ratio of 1I:5O:5W, an emulsion injection level of 82.5 g with an emulsion ratio of 1.5I:7.5O:7.5W, an emulsion injection level of 110 g with an emulsion ratio of 2I:10O:10W, and a commercial meltique beef as a positive control. The observed parameters were physical and sensory qualities. Physical quality data were analyzed using a one-way Completely Randomized Design (CRD) analysis of variance, followed by Duncan's New Multiple Range Test. Sensory quality data were analyzed using the Kruskal-Wallis test, followed by the Mann-Whitney test. The sunflower seed oil emulsion injection had a significant effect ($P < 0.05$) on both physical and sensory quality tests of meltique beef steak. The best physical quality was obtained at the emulsion injection level of 110 g, with a pH value of 6.10 ± 0.17 , water-holding capacity of $28.55\% \pm 0.67$, texture hardness of $18.22 \text{ N} \pm 0.97$, cohesiveness of 0.60 ± 0.01 , springiness of 0.58 ± 0.01 , gumminess of $10.84 \text{ N} \pm 0.57$, chewiness of $6.26 \text{ N} \pm 0.37$, cooked color L^* (lightness) of 50.70 ± 0.17 , cooked color a^* (redness) of 11.91 ± 0.16 , and cooked color b^* (yellowness) of 14.28 ± 0.35 . The best sensory quality was also observed at the emulsion injection level of 110 g, with color (7.05 ± 0.81), aroma (6.78 ± 0.83), taste (7.00 ± 0.82), texture (6.80 ± 0.76), and overall acceptance (7.15 ± 0.80). In conclusion, sunflower seed oil injection in beef resulted in the best physical and sensory quality at the 110 g emulsion injection level, as it improved pH value, cohesiveness, springiness, lightness (L^*), and yellowness (b^*) while reducing water-holding capacity, hardness, gumminess, chewiness, and redness (a^*), ultimately leading to the best sensory quality.

Keywords: Steak, beef, meltique, sunflower seed oil, emulsion, injection, physical quality, sensory quality.