# POTENSI EKSTRAK TEH HIJAU (*Camellia sinensis*) SEBAGAI SUMBER ANTIOKSIDAN ALAMI UNTUK MENJAGA STABILITAS OKSIDASI AYAM BROILER YANG MENDAPAT RANSUM TINGGI PUFA

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## INTISARI

Penelitian ini bertujuan untuk mengetahui potensi ekstrak teh hijau sebagai sumber antioksidan alami pada ransum yang mengandung asam lemak tak jenuh tinggi serta efeknya terhadap kinerja produksi dan stabilitas oksidasi ayam broiler. Penelitian dilaksanakan di Jurusan Peternakan Fakultas Pertanian UNS, Fakultas Peternakan UGM dan Laboratorium PanganGizi PAU-UGM mulai bulan September 2009 sampai November 2011. Penelitian berlangsung dalam dua tahap, tahap pertama merupakan penelitian di laboratorium untuk mempersiapkan ekstrak teh hijau dari daun teh tua dan daun teh muda serta evaluasi kapasitas antioksidan yang diamati melalui kandungan polifenol, flavonoid, daya hambat pembentukan malonaldehid (MDA) dan daya antioksidan dipenilpikrilhidrazin (DPPH). Pada tahap kedua merupakan penelitian eksperimental ransum pada 100 ekor ayam broiler yang didistribusi dengan Rancangan Acak Lengkap (RAL) dengan perlakuan ransum T0= ransum basal tanpa suplementasi ETHm; T1 = ransum basal + 1 g ETHm/ kg ransum; T2= ransum basal + 2 g ETHm/ kg ransum ; T3 = ransum basal + 3 g ETHm/ kg ransum dan T4 = ransum basal + 200 mg vit. E/ kg ransum. Ransum basal mengandung 2 % minyak ikan lemuru dan 2% minyak sawit sebagai sumber asam lemak tak jenuh ganda. Parameter yang diamati meliputi kinerja produksi meliputi konsumsi ransum, pertembahan bobot badan dan konversi ransum , kualitas kimia daging, profil asam lemak daging, profil hematologi, profil lipid serum dan stabilitas oksidasi yang diamati melalui aktivitas ensim superoksida dismutase (SOD) dan penghambatan pembentukan malonaldehid (MDA). Hasil penelitian tahap pertama menunjukkan bahwa daun teh hijau muda memberikan hasil lebih baik dari pada daun tua dengan rendemen ekstrak 23,90 vs 14,66 % ), kadar polifenol total (32.93 vs 7.04 % EAG), kadar flavonoid total (19,38 vs 2,26 % EC), daya inhibisi MDA ( 80,61 vs 48,24% ) dan nilai $IC_{50}$ terhadap DPPH ( 4,48 vs 30,29 µg/ml). Berdasarkan hasil tersebut maka ekktrak teh hijau muda (ETHm) dipilih sebagai bahan suplementasi ransum. Hasil penelitian tahap kedua menunjukkan bahwa suplementasi 3 g ETHm / kg ransum tidak mempengaruhi kinerja produksi, kualitas kimia daging, profil asam lemak daging, tetapi nyata menurunkan lemak abdominal dan kolesterol , menghambat peroksidasi lipid dan meningkatkan kadar ensim superoksida dismutase (SOD). Secara keseluruhan dapat disimpulkan bahwa suplementasi 3 g ETHm/kg ransum yang mengandung asam lemak tak jenuh tinggi tidak mempengaruhi performan produksi dan dapat menjaga stabilitas oksidasi ayam broiler.

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Kata kunci : Ekstrak Teh hijau, Antioksidan, Performan produksi, Stabilitas oksidasi

# SUMMARY

## POTENTIAL OF GREEN TEA EXTRACT (*Camellia sinensis*) AS THE SOURCE OF NATURAL ANTIOXIDANTS TO MAINTAIN STABILITY OXIDATION BROILER FED HIGH PUFA DIET

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## ABSTRACT

This aims of this study were to investigate the potential of green tea extract as a natural source of antioxidants in the diet containing highly unsaturated fatty acids on performance of production and oxidation stability of broiler. Research was conducted at the Department of Animal Husbandry, Faculty of Agriculture UNS, Faculty of Animal Science UGM and Laboratory Pangan Gizi- PAU- UGM starting in September 2009 until November 2011. The research was done in two stages, The first stage is a research laboratory for preparing green tea extracts of the leaves of mature and young tea leaves and evaluation of the antioxidant capacity was observed through the content of polyphenols, flavonoids, inhibition of the formation of malonaldehyde (MDA) and antioxidant power dypenilpikrilhydrazin (DPPH). The second stage of an experimental diet at 100 day old chick broilers were distributed to completely randomized design (CRD) with treatment T0 = basal diet without supplementation ETHm; T1 = basal diet + 1 g ETHm/kg ; T2 = basal ration ETHm + 2 g / kg ; T3 = basal ration ETHm + 3 g / kg and T4 = basal diet + 200 mg vit. E / kg ration. The basal diet containing 2% fish oil and 2% palm oil as a source of polyunsaturated fatty acids.The parameters observed were performance production include feed consumption, body weight gain and feed conversion, chemical quality of meat and oxidation stability was observed through inhibition of formation of malonaldehyde (MDA) and the activity of enzyme superoxide dismutase (SOD). The first research showed that the young tea leaves give better results than the old leaves to extract yield (23.90 vs 14.66%), total polyphenol content (32.93% vs. 7.04 EAG), total flavonoid content (19.38 vs 2.26% EC), the power of inhibition of MDA (80.61 vs 48.24%) and $IC_{50}$ against DPPH (4.48 vs 30.29 µg / ml). Based on these results the extracts of young green tea (ETHm) was chosen as material of feed supplementation. The second stage of the research showed that supplementation ETHm 3g / kg ration does not affect performance of production, the chemical quality of meat, fatty acid profile of meat, but significant lower abdominal fat and cholesterol, inhibit lipid peroxidation and increase levels of the enzyme superoxide dismutase (SOD). Overall it can be concluded that supplementation ETHm 3 g / kg diet containing highly unsaturated fatty acids can maintain the performance and oxidation stability of broiler chickens.

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Keywords: Green tea extract, Antioxidant, Performance of production, Oxidation stability