

PENGARUH METODE PENYEDUHAN TERHADAP KARAKTERISTIK FISIKOKIMIA KOPI ARABIKA TORAJA

INTISARI

Oleh:

Rahmatdita Hanifiantyo

Preferensi konsumen terhadap kopi arabika Indonesia semakin beragam, baik dari sisi manfaat fungsional maupun pengalaman sensori. Penelitian ini bertujuan untuk menganalisis pengaruh lima metode penyeduhan, yaitu espresso, *pour-over* (V60), *cold brew*, French press, dan tubruk terhadap sifat fisikokimia serta kandungan senyawa bioaktif kopi arabika Indonesia Toraja. Hasil penelitian menunjukkan bahwa metode penyeduhan berpengaruh nyata terhadap karakter kopi seduh. Espresso menghasilkan intensitas warna paling gelap, kurang merah dan kuning, dengan nilai L^* ($21,56 \pm 0,94$) a^* ($5,14 \pm 0,20$) b^* ($6,49 \pm 0,77$) dan nilai *Total Dissolved Solids* sebesar $4,53 \pm 0,25\%$. Sementara itu, tubruk menunjukkan TDS terendah yakni $1,06 \pm 0,00\%$. Nilai *Extraction Yield* (EY) tertinggi diperoleh pada metode V60 ($24,31 \pm 0,10\%$), sementara metode *immersion*, khususnya tubruk memiliki efisiensi ekstraksi terendah ($16,50 \pm 0,10\%$). *Cold brew* menunjukkan nilai pH paling tinggi atau tingkat keasaman terendah disbanding espresso dan French press yakni $4,88 \pm 0,03$. Sementara espresso, memiliki nilai *Total Titratable Acidity* (TTA) tertinggi $6,93 \pm 0,67$ NaOH per 15 ml seduhan kopi. Dari sisi senyawa bioaktif, espresso menghasilkan kandungan total fenolik ($6819,98 \pm 687,40$ mg GAE/L), aktivitas antioksidan ABTS dan FRAP ($93,62 \pm 5,92\%$; $54,78 \pm 8,20\%$), kafein ($3426,36 \pm 360,59$ mg/L), asam klorogenat ($6050,38 \pm 719,52$ mg/L), dan asam kafeat tertinggi ($204,87 \pm 24,09$ mg/L), diikuti oleh V60, sementara metode *cold brew*, French press, dan tubruk cenderung menghasilkan nilai lebih rendah dan relatif serupa. Secara keseluruhan, hasil ini menegaskan bahwa metode penyeduhan berperan penting dalam membentuk profil fisikokimia dan bioaktif kopi sehingga dapat digunakan sebagai dasar pemilihan teknik seduh sesuai preferensi konsumen.

Kata kunci: Kopi Arabika, Kopi Toraja, Metode Penyeduhan, Sifat Fisikokimia, Senyawa Bioaktif

IMPACT OF DIFFERENT BREWING METHODS ON THE PHYSICOCHEMICAL CHARACTERISTICS OF TORAJA ARABICA COFFEE

ABSTRACT

By:

Rahmatdita Hanifiantyo

Consumer preferences for arabica Indonesian coffee have become increasingly diverse, encompassing both functional benefits and sensory experiences. This study aimed to evaluate the effects of five brewing methods espresso, pour-over (V60), cold brew, French press, and tubruk on the physicochemical properties and bioactive compound content of Indonesian Arabica Toraja coffee. The results demonstrated that brewing method significantly influenced the characteristics of the brewed coffee. Espresso produced the darkest color intensity, less reddish, and yellowish with L^* (21.56 ± 0.94), a^* (5.14 ± 0.20), and b^* (6.49 ± 0.77) values, and exhibited the highest Total Dissolved Solids (TDS) at $4.53 \pm 0.25\%$. In contrast, tubruk showed the lowest TDS value ($1.06 \pm 0.00\%$). The highest Extraction Yield (EY) was obtained using the V60 method ($24.31 \pm 0.10\%$), whereas immersion-based methods, particularly tubruk, demonstrated the lowest extraction efficiency ($16.50 \pm 0.10\%$). Cold brew displayed the highest pH value compared to Espresso and French press, indicating the lowest acidity level (4.88 ± 0.03). While espresso exhibited the highest Total Titratable Acidity (TTA), reaching 6.93 ± 0.67 NaOH per 15 mL of coffee brew. Regarding bioactive compounds, espresso yielded the highest levels of total phenolic content (6819.98 ± 687.40 mg GAE/L), antioxidant activity measured by ABTS and FRAP assays ($93.62 \pm 5.92\%$ and $54.78 \pm 8.20\%$, respectively), caffeine (3426.36 ± 360.59 mg/L), chlorogenic acid (6050.38 ± 719.52 mg/L), and caffeic acid (204.87 ± 24.09 mg/L). These values were followed by the V60 method, whereas cold brew, French press, and tubruk generally produced lower and relatively comparable levels. Overall, these findings confirm that brewing methods play a crucial role in shaping the physicochemical characteristics and bioactive profile of coffee. Therefore, the selection of brewing techniques can serve as a strategic basis for tailoring coffee preparation to meet diverse consumer preferences.

Keywords: Arabica coffee, Toraja coffee, Brewing method, Physicochemical properties, Bioactive compounds