

INTISARI

Minuman kopi seduh dingin/*cold brew* merupakan salah satu minuman yang diminati secara global maupun di Indonesia karena menghasilkan intensitas rasa manis yang lebih tinggi, namun proses penyeduhannya memakan waktu yang lama (8-12 jam). Penelitian ini berfokus pada penggunaan teknologi *freeze-thawing* sebagai *pretreatment* untuk merusak mikrostruktur serbuk kopi sehingga waktu seduh *cold brew* dapat dipersingkat. Penelitian ini menggunakan kopi Arabika dan Robusta. Kedua jenis kopi disangrai medium, digrinding dan disaring menggunakan ayakan (16 dan 30 mesh). Serbuk kopi disemprot dengan air (1,884 g/g serbuk), didiamkan (6 menit) dan diberi perlakuan *freeze-thawing* (2 siklus) dan tanpa *freeze-thawing*. Serbuk pasca *freeze-thawing* kemudian diseduh (rasio 1:10) selama 1, 4 dan 8 jam lalu disaring, sedangkan tanpa *freeze thawing* diseduh 8 jam. Serbuk pasca *freeze-thawing* dan tanpa *freeze-thawing* diamati mikrostrukturnya menggunakan SEM, sedangkan sifat fisikokimia *cold brew* yang diuji meliputi pH, total asam tertitrasi, total padatan terlarut, gula reduksi, kafein, klorogenat dan total fenol. Sifat sensoris ditentukan dengan menggunakan uji *cupping* di Pusat Penelitian Kopi dan Kakao dengan menggunakan lima panelis terlatih. Hasil pengujian menunjukkan bahwa perlakuan *freeze-thawing* dapat menyebabkan kerusakan pada mikrostruktur serbuk kopi. *Cold brew* yang dihasilkan memiliki nilai pH (4,74-5,61), total asam tertitrasi (5,18-10,36%), total padatan terlarut (1,58-1,73%), gula reduksi (14,85-27,71 mg/100 mL), kafein (1.383,46-3.027,67 mg/L), asam klorogenat (2.261,67-3.264,21mg/L) dan total fenol (2780,91-3340,05 mg/L). Nilai skor *cold brew* berkisar antara 81,00-85,10 dengan deskripsi flavor dominan seperti *brown sugar*, *caramelly*, *chocolaty* dan *cereally*.

Kata kunci: serbuk, *freeze-thawing*, mikrostruktur, *cold brew*, fisikokimia, sensoris

ABSTRACT

Cold brew coffee is popular beverage both globally and in Indonesia because it produces a sweeter, more intense flavor, however, the brewing process takes a long time (8-12 hours). This study focuses on the use of freeze-thawing technology as a pretreatment to disrupt the microstructure of coffee grounds, thereby shortening the cold brew brewing time. This study used Arabica and Robusta coffee. Both types of coffee were medium-roasted, ground, and sieved using 16 and 30 mesh sieves. The coffee grounds were sprayed with water (1.844 g/g of grounds), allowed to stand (6 minutes), and then subjected to freeze-thawing treatment (2 cycles) or left untreated. The freeze-thaw treated grounds were then brewed (at a 1:10 ratio) for 1,4, and 8 hours and filtered, while the non freeze-thaw treated grounds were brewed for 8 hours. The microstructures of the freeze-thaw treated and untreated grounds were observed using SEM, while the physicochemical properties of the cold brew tested included pH, total titratable acidity, total dissolved solids, reducing sugars, caffeine, chlorogenic acid, and total phenols. Sensory properties were determined using a cupping test at the Coffee and Cocoa Research Center with five trained panelists. The test result showed that the freeze-thawing treatment can cause damage to the microstructure of the coffee powder. The resulting cold brew had a pH (4.74-5.61), total titratable acidity (5.18-10.36%), total dissolved solids (1.58-1.73%), reducing sugars (14.85-27.71 mg/100 mL), caffeine (1,383.46-3,027.67 mg/L), chlorogenic acid (2,261.67-3,264.21 mg/L), and total phenols (2,780.91-3,340.05 mg/L). The cold brew scores ranged from 81.00-85.10 with dominant flavor descriptions such as brown sugar, caramelly, chocolaty and cereally.

Keywords: powder, freeze-thawing, microstructure, cold brew, physicochemical, sensory