

KARAKTERISTIK FISIKOKIMIA MINYAK BIJI MATOA (*Pometia pinnata* Forst.) VARIETAS KELAPA

ABSTRAK

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Buah matoa (*Pometia pinnata*) varietas kelapa merupakan tumbuhan khas daerah Papua yang memiliki beragam manfaat. Biji matoa kelapa dilaporkan mengandung kadar minyak sebesar $23,25 \pm 1,32$ % yang berpotensi dijadikan sumber minyak nabati baru. Penelitian ini bertujuan untuk mengetahui rasio buah matoa kelapa; karakteristik geometris dan fisik biji matoa kelapa; serta karakteristik kimia, fisik, dan thermal minyak biji matoa kelapa. Morfologi buah matoa kelapa dengan rasio terbesar hingga terkecil secara berurutan, yaitu pada bagian daging buah, biji buah, kernel, dan kulit buah. Biji matoa varietas kelapa memiliki karakteristik geometris dan fisik biji yang beragam meliputi panjang (29 mm), lebar (19,36 mm), tebal (12,59 mm), *geometric mean diameter* (19,29 mm), *arithmetic mean diameter* (20,49), *frontal surface area* (448,94 mm²), *cross sectional area* (989,96 mm²), *shape index* (1,90), *sphericity* (0,65), massa (3,98 g), volume (4,05 ml), *true density* (0,98 g/ml), *bulk density* (0,57 g/ml), dan *porosity* (42,54 %). Minyak biji matoa kelapa hasil ekstraksi maserasi menggunakan pelarut n-heksana memiliki karakteristik kimia antara lain asam lemak dominan penyusun minyak biji matoa kelapa berupa asam linoleat+linolelaidat (38,81%), komponen TAG (96,46%), angka iod (45,42 g iod/100 g minyak), *saponification value* (158,57 mg KOH/g), *unsaponifiable matter* (3,18%), angka asam (1,15 mg KOH/g), angka peroksida (0,97 mEq/kg), angka p-anisidine (0,17 mEq/kg), dan tottox value (2,12 mEq/kg); karakteristik fisik antara lain massa jenis (0,87 g/ml), warna (hijau kekuningan), viskositas (26,47 cP), dan indeks refraksi (1,47); serta karakteristik thermal antara lain titik leleh (24,80°C), titik asap (144,23°C), profil kristalisasi (-14,82°C sampai -19,09°C), dan profil *melting* (13,44°C sampai 25,37°C). Minyak biji matoa kelapa memiliki potensi untuk dimanfaatkan sebagai *edible oil* yang menyerupai lemak biji rambutan.

Kata kunci: matoa kelapa, minyak pangan, karakteristik kimia, karakteristik fisik, karakteristik thermal.

PHYSICOCHEMICAL CHARACTERISTICS OF MATOA (*Pometia pinnata* Forst.) SEED OIL COCONUT VARIETY

ABSTRACT

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Matoa fruit (*Pometia pinnata*) coconut variety is a plant typical of the Papua region that has various benefits. Coconut matoa seeds are reported to contain an oil content of $23.25 \pm 1.32\%$ which has the potential to be used as a source of new vegetable oil. This study aims to determine the ratio of coconut matoa fruit; geometric and physical characteristics of coconut matoa seeds; and the chemical, physical, and thermal characteristics of coconut matoa seed oil. Morphology of coconut matoa fruit with the largest to smallest ratio sequentially on the flesh, fruit seeds, kernel, and fruit skin. Matoa seeds of coconut have various geometric and physical characteristics including length (29 mm), width (19.36 mm), thickness (12.59 mm), geometric mean diameter (19.29 mm), arithmetic mean diameter (20.49 mm), frontal surface area (448.94 mm²), cross sectional area (989.96 mm²), shape index (1.90), sphericity (0.65), mass (3.98 g), volume (4.05 ml), true density (0.98 g/ml), bulk density (0.57 g/ml), and porosity (42.54%). Coconut matoa seed oil extracted by maceration using n-hexane has chemical characteristics, including the dominant fatty acid constituent of coconut matoa seed oil in the form of linoleic+linolrlaidic acid (38.81%), TAG component (96,46%), iodine value (45.42 g iodine/100 g oil), saponification value (158.57 mg KOH/g), unsaponifiable matter (3.18%), acid value (1.15 mg KOH/g), peroxide value (0.97 mEq/kg), p-anisidine value (0.17 mEq/kg), and totox value (2.12 mEq/kg); physical characteristics include density (0.87 g/ml), color (yellowish green), viscosity (26.47 cP), and index of refraction (1.47); and thermal characteristics, including melting point (24.80°C), smoke point (144.23°C), crystallization profile (-14.82°C to -19.09°C), and melting profile (13.44°C to 25, 37°C). Matoa kelapa seed oil has the potential to be used as edible oil such as rambutan seed fat.

Keywords: coconut matoa, edible oil, chemical characteristics, physical characteristics, thermal characteristics.