

INTISARI

KLASIFIKASI TEH HITAM DAN TEH HIJAU TAMBI-PAGILARAN BERDASARKAN POLA AROMA DENGAN METODE *PRINCIPAL COMPONENT ANALYSIS* (PCA) MENGGUNAKAN E-NOSE

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Telah dilakukan penelitian untuk klasifikasi sampel teh hijau dan teh hitam yang berasal dari lokasi penanaman yang berbeda, yaitu Tambi dan Pagilaran. Sampel teh hijau dan teh hitam; kualitas I (BOP), kualitas II (BP), kualitas III (Bohea) masing-masing diambil dari perkebunan teh Tambi dan Pagilaran untuk dianalisis karakteristiknya. Pengukuran sampel teh dilakukan dengan menggunakan perangkat *e-nose* dinamis berbasis sensor gas, dengan *set point* suhu maksimal 40° C, *flushing* 300 detik, *collecting* 120 detik, dan *purging* 80 detik selama 10 siklus secara berulang. Data berupa respon sensor yang dihasilkan kemudian diekstraksi cirinya ke dalam tiga metode; *relative*, *fractional change*, dan integral. Data matriks hasil ekstraksi ciri direduksi menggunakan metode PCA dengan memetakan pola aroma setiap sampel menggunakan 2-komponen utama PCA. Hasil PCA dari ekstraksi ciri metode *relative* dan metode integral dianggap relevan dalam mengklasifikasikan data sampel teh hijau dan teh hitam Tambi-Pagilaran karena memiliki persentase variansi kumulatif terbesar lebih dari 90%.

Kata kunci: *e-nose*, klasifikasi, teh Tambi-Pagilaran, PCA.

ABSTRACT

CLASSIFICATION OF TAMBI-PAGILARAN GREEN TEA AND BLACK TEA BASED ON PATTERN OF AROMA WITH PRINCIPAL COMPONENT ANALYSIS (PCA) USING E-NOSE

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The classification of samples of green tea and black tea originated from different planting sites, Tambi and Pagilaran. Samples of green tea and black tea; quality I (BOP), quality II (BP), quality III (Bohea) were each collected from Tambi and Pagilaran to analyze the characteristic of both sample from both sites. Measurements of tea samples were performed using a dynamic e-nose device based on a MOS gas sensor, with a maximum set point temperature of 40° C, flushing 300 seconds, collecting 120 seconds, and purging 80 seconds for 10 cycles repeatedly. The resulting sensor response is then processed using the difference method for baseline manipulation. Characteristic of extraction process on the sensor response results is carried out in three methods; relative, fractional change, and integral. Matrix data of the feature extraction results was reduced using the PCA method by mapping the aroma patterns of each sample using 2-PCA components. The results of PCA by feature extraction of relative and integral methods are considered relevant in clarifying data of Tambi-Pagilaran green tea and black tea samples as having the largest percentage of cumulative variance over 90%.

Keyword: *e-nose, classification, Tambi-Pagilaran tea, PCA*

