

ABSTRACT

Turmeric (Curcuma longa L.) is a rhizome plant that has long been used by Indonesian people as a cooking spice and raw material for traditional medicine. The main active compound in turmeric is curcumin which gives a characteristic yellow color and has various health benefits, including antioxidant, anti-inflammatory, and antimicrobial activities.

This study aims to identify functional groups in the active compound curcuminoid and the differences in infrared spectrum patterns aimed at the spectrum patterns of the quadrants produced in commercial turmeric powder products sold in the market using infrared spectrophotometry methods. Samples of commercial turmeric powder products were collected from 10 traditional markets and analyzed using Attenuated Total Reflection Fourier Transform Infra Red ATR-FTIR. The results of the interpretation of peak wave numbers from the FTIR spectra were analyzed using Principle Component Analysis (PCA) to determine Principle Component 1 and 2 then the FTIR spectra patterns analyzed with Minitab software produced a score plot with 4 quadrants. Similar FTIR spectra patterns will be in the same quadrant.

The results of the analysis of 10 samples of commercial turmeric powder products tested showed differences in the FTIR spectral profiles indicating variations in the quality and purity of pure turmeric powder by identifying the presence of functional groups of turmeric characteristic marker compounds, especially curcuminoids. The results of the FTIR spectral analysis with PCA showed that turmeric powder from Condongcatur Market, Ngasem Market, Sambilegi, Sorogenen, Kutu, Maguwoharjo, and Beringharjo had FTIR spectral patterns similar to powder from pure turmeric rhizomes located in quadrant 2. The FTIR spectral patterns of turmeric powder from Gowok Ambarukmo and Colombo Markets located in quadrant 1, as well as the FTIR spectral pattern of Sentul Market located in quadrant 3 had different FTIR spectral patterns from pure turmeric powder.

Key Words: *Kunyit, Curcuma longa L, spectroscopy. Attenuated Total Reflection Fourier Transform Infra Red (ATR-FTIR).*