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## **VALIDASI METODE DAN PENETAPAN KADAR ASAM ASKORBAT PADA BEBERAPA VARIETAS BUAH TOMAT LOKAL DENGAN METODE SPEKTROFOTOMETRI UV-Vis**

### **ABSTRAK**

**Latar Belakang :** Sistem kekebalan tubuh sangat penting di era pandemi Covid-19, sehingga mengkonsumsi asam askorbat sangat dianjurkan. Asam askorbat sebagai antioksidan yang berkontribusi terhadap peningkatan dan pertahanan sistem kekebalan tubuh. Pangan lokal yang mengandung asam askorbat contohnya buah tomat. Selain harganya yang murah, kandungan asam askorbat tomat juga unggul. Penelitian dilakukan untuk mengetahui validasi metode dan kadar asam askorbat pada buah tomat dari varietas tersebut.

**Metode :** Jenis penelitian menggunakan metode eksperimental dilakukan dengan validasi metode Spektrofotometri UV-Vis untuk penetapan kadar asam askorbat buah tomat. Parameter validasi meliputi linearitas, presisi, akurasi, batas deteksi dan kuantitasi. Sampel tomat Ceri, Kendedes, Servo diambil dari desa Kintelan, Pakis, Magelang dengan umur tumbuhan 73 hari dipetik pada pagi hari.

**Hasil :** Hasil penelitian didapatkan panjang gelombang maksimum asam askorbat 265nm, persamaan garis linier  $y=0,0524x+0,2064$  dengan koefisien korelasi ( $r$ )0,9980, batas deteksi 0,6920 ppm dan batas kuantitasi 2,3069 ppm. Presisi dilakukan secara *intraday* dan *interday* didapatkan hasil  $\%RSD \leq 2\%$ . Akurasi ditentukan berdasarkan hasil perolehan kembali menggunakan metode penambahan baku didapatkan hasil rata-rata 101,778%. Kadar asam askorbat tomat Ceri (16,244mg/100gram), tomat Kendedes (9,576mg/100gram) dan tomat Servo (12,897mg/100gram).

**Kesimpulan :** Parameter validasi metode memenuhi semua persyaratan yang diinginkan. Kadar asam askorbat pada ketiga varietas tomat memiliki hasil yang berbeda signifikan berdasarkan analisis statistika Kruskal-Wallis test( $0,027 < 0,05$ ).

**Kata Kunci :** Validasi, asam askorbat, tomat, spektrofotometri UV-Vis

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## **METHOD VALIDATION AND DETERMINATION OF ASCORBIC ACID LEVELS IN SOME VARIETY OF LOCAL TOMATOES WITH UV-Vis SPECTROPHOTOMETRY**

### **ABSTRACT**

**Background :** The immune system is very important in the era of the Covid-19 pandemic, so consuming ascorbic acid is highly recommended. Ascorbic acid is an antioxidant that contributes to the improvement and defense of the immune system. Local foods that contain ascorbic acid, for example, tomatoes. In addition to the low price, the content of tomato ascorbic acid is also superior. The study was conducted to determine the validation of the method and the levels of ascorbic acid in tomatoes of these varieties.

**Methods :** This type of research using experimental methods was carried out with the validation of the UV-Vis Spectrophotometry method for the determination of ascorbic acid levels in tomatoes. The validation parameters include linearity, precision, accuracy, limit of detection and quantitation. Cherry tomatoes, Kendedes, Servo samples were taken from the village of Kintelan, Pakis, Magelang with a plant age of 73 days picked in the morning.

**Results:** The results showed that the maximum wavelength of ascorbic acid was 265nm, the linear equation  $y=0.0524x+0.2064$  with a correlation coefficient ( $r$ )0.9980, the detection limit was 0.6920 ppm and the quantitation limit was 2.3069 ppm. Precision performed *intraday* and *interday* obtained results  $\%RSD \leq 2\%$ . Accuracy is determined based on the results of recovery using the standard addition method, the average result is 101.778%. Ascorbic acid content of Cherry tomatoes (16.244mg/100gram), Kendedes tomatoes (9.576mg/100gram) and Servo tomatoes (12.897mg/100gram).

**Conclusion:** The method validation parameters meet all the desired requirements. Ascorbic acid levels in the three tomato varieties had significantly different results based on statistical analysis of the Kruskal-Wallis test ( $0.027 < 0.05$ ).

**Keywords :** Validation, ascorbic acid, tomato, UV-Vis spectrophotometry