

ABSTRACT

Background: Reagent efficiency is crucial in laboratory testing to reduce operational costs. The GOD-PAP method (Glucose Oxidase - Peroxidase Aminoantipirin) can be modified by using one-quarter volume of reagents and samples, however, validation is required beforehand. Validation is conducted by testing parameters such as linearity, Limit of Detection (LoD) and Limit of Quantitation (LoQ) to ensure the accuracy of results.

Research Objective: To determine whether the modification of the GOD-PAP method (Glucose Oxidase - Peroxidase Aminoantipirin) using one-quarter volume of reagents and samples meets the validation criteria for linearity, Limit of Detection (LoD) and Limit of Quantitation (LoQ).

Research Methods: This study employed a descriptive analytic research design aimed at objectively describing the reality of the studied object.

Results: Linearity tests conducted six times yielded coefficient of determination (R^2) values of 0.9504, 0.9037, 0.9604, 0.9625, 0.9699, and 0.9591. All R^2 values were below the acceptance criterion of $R^2 > 0.997$. Therefore, the method did not meet the linearity requirement. Due to failure to meet linearity criteria, LoD and LoQ tests were not performed and their values could not be determined.

Conclusion: The modification of the GOD-PAP method (Glucose Oxidase - Peroxidase Aminoantipirin) using one-quarter volume of reagents and samples does not meet the validation requirements for linearity, Limit of Detection (LoD) and Limit of Quantitation (LoQ).

Keywords: GOD-PAP, method validation, linearity, Limit of Detection, Limit of Quantitation

ABSTRAK

Latar Belakang: Efisiensi reagen penting dalam pemeriksaan laboratorium untuk menekan biaya operasional. Metode GOD-PAP (*Glucose Oxidase - Peroxidase Aminoantipirin*) dapat dimodifikasi dengan seperempat volume reagen dan sampel, namun perlu dilakukan validasi terlebih dahulu. Validasi dilakukan dengan menguji parameter linearitas, *Limit Of Detection* (LoD) dan *Limit Of Quantitation* (LoQ) untuk memastikan keakuratan hasil.

Tujuan Penelitian: Mengetahui apakah modifikasi metode GOD-PAP (*Glucose Oxidase - Peroxidase Aminoantipirin*) dengan penggunaan seperempat volume reagen dan sampel memenuhi validasi linearitas, *Limit of Detection* (LoD) dan *Limit of Quantitation* (LoQ).

Metode Penelitian: Jenis penelitian yang digunakan adalah jenis penelitian deskriptif analitik yang bertujuan memberikan gambaran tentang realitas pada objek yang diteliti secara objektif.

Hasil: Dari enam kali pengujian linearitas diperoleh nilai koefisien determinasi (R^2) sebesar 0,9504, 0,9037, 0,9604, 0,9625, 0,9699, dan 0,9591. Seluruh nilai R^2 tersebut berada di bawah batas penerimaan yang ditetapkan, yaitu $R^2 > 0,997$. Dengan demikian, metode tidak memenuhi syarat linearitas. Karena tidak memenuhi syarat linearitas, pengujian *Limit of Detection* (LoD) dan *Limit of Quantitation* (LoQ) tidak dilakukan, sehingga nilai *Limit of Detection* (LoD) dan *Limit of Quantitation* (LoQ) tidak dapat ditentukan.

Kesimpulan: Modifikasi metode GOD-PAP (*Glucose Oxidase - Peroxidase Aminoantipirin*) dengan penggunaan seperempat volume reagen dan sampel tidak memenuhi validasi linearitas, *Limit of Detection* (LoD) dan *Limit of Quantitation* (LoQ).

Kata Kunci: GOD-PAP, validasi metode, linearitas, *Limit Of Detection*, *Limit Of Quantitation*