VALIDATION OF DEXAMETASONE RAPID DETECTION METHOD USING SPECIFIC REAGENT TEST KIT AND NATA DE COCO MEMBRANE-BASED TEST STRIP

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ABSTRACT

Background: *Dexamethasone is a corticosteroid often misused in traditional herbal medicine, particularly* jamu pegal linu *(herbal remedies for muscle aches). According to* BPOM (Badan Pengawas Obat dan Makanan) Indonesia*, the identification of dexamethasone is typically performed using Thin Layer Chromatography (TLC) and a TLC scanner. However, these methods require expensive equipment and specialized expertise, making them impractical for field analysis. Therefore, a rapid and simple detection method, such as specific reagent test kits and strip tests based on nata de coco membranes, is needed. Since rapid detection methods are not part of standard analytical procedures, validation is necessary.* ***Objective:*** *This study aims to validate the specific reagent test kit and the nata de coco membrane-based strip test to identify dexamethasone. Research* ***Methods:*** *The study began with preparing four reagents: Lieberman, Mandelin, Naphthol, and Sulfuric Acid. The test kit utilized these liquid reagents directly, followed by method validation through specificity testing. The optimal reaction time for each reagent was determined before the specificity test. Meanwhile, the strip tests were developed by immobilizing the reagents onto nata de coco membranes.* ***Results:*** *The test kit showed faster and more distinct color changes than the strip tests when tested with dexamethasone standard solutions. However, specificity testing revealed that the reagents could not distinguish between herbal samples and spiked solutions, indicating a potential for false positive results. Additionally, the strip test failed to dry properly and showed no color change when tested with dexamethasone solution, and thus was not continued to the validation stage.* ***Conclusion:*** *The rapid detection methods in this study did not demonstrate adequate specificity for accurately detecting dexamethasone in complex matrices such as herbal medicine. Further development is needed to improve the specificity of the detection methods.*

Keywords: *Validation, Rapid Detection, Test Stript, Test Kit, Dexamethasone*