

Simultaneous Determination of Piroxicam, Sodium Diclofenac, Ibuprofen, Phenylbutazone and Mefenamic Acid as Adulterants in “Jamu” intended for the Treatment of Pain by High Performance Liquid Chromatography with Diode Array Detection

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Background: Jamu is Indonesian herbal medicine that widely used as an alternative choice of treatment to the Indonesian people. Based on the investigation and laboratory testing of NADFC RI, many illegal products have been found adulterated in the market which contain chemical substances. **Objective:** For the simultaneous determination of Piroxicam, Sodium Diclofenac, Ibuprofen, Phenylbutazone and Mefenamic Acid as adulterants in “Jamu” intended for the treatment of pain; clean up by Solid Phase Extraction (SPE) and determined by a high-performance liquid chromatography with diode-array detector method, was established. **Materials and Methods:** Clean up the matrices of “Jamu” using MAX cartridge (60 mg/3cc), after preconditioning with 1.5 mL Methanol and 1.5 mL Water, wash with 2.5% Ammonium hidoxide/Water and 2.5% Ammonium hidoxide in 5% Methanol; elute (1) with mobile phase 1:1 and elute (2) with 4% formic acid in Methanol. Both eluates were mixed to be determined by HPLC. To develop the HPLC-method, a reverse phase column, Waters-XBright™ C₁₈ (250mm x 4.6mm id) was used and the mobile phase consisted of acetonitril and phosphate buffer; pH 3,71- 3,77 (adjusted with potassium hidroxide 10%) using a gradient elution. The UV wavelength was set at 254. **Results:** Validation parameter and calculated performance criteria : specificity and Limit of Detection. This method was applied to the commercial “Jamu” sample and the five chemical substances were separated effectively without interference of any peaks of components. The limit of detection (LOD) for Piroxicam is 0.2 µg/mL; Sodium diclofenac is 0.3 µg/mL ; Ibuprofen is 4.3 µg/mL; Phenylbutazone is 0.3 µg/mL and Mefenamic acid is 0.2 µg/mL. **Conclusion:** This developed method is suitable for screening those adulterants in jamu.