



DETERMINATION OF ANDROGRAPHOLIDE CONTENT IN *ANDROGRAPHIS* HERB BY FLOW INJECTION ANALYSIS

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Abstract: Flow injection (FI) analysis for determination of andrographolide contents in *Andrographis* herb samples was examined. The herb samples are collected from retail markets in Phitsanulok province. The sample was extracted with ethanol. The FI is based on the measurement of a red-colour product at 536 nm formed by the complexation reaction between andrographolide, 0.25% of 3, 5-dinitrobenzoic acid and 0.7% of potassium hydroxide, respectively. On injecting 50 μ L standard solution at various concentration of andrographolide into FI system under optimum conditions, a linear calibration graph over the range of 20-100 μ g/mL andrographolide was established. It is expressed by the regression equation; $y = 0.0008x + 0.007$ ($r^2 = 0.9868$). The method was successfully applied in the determination of andrographolide content in the *Andrographis* herb products. The method is simple, rapid and relatively inexpensive.

References:

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Keywords: Andrographis Herb, Tatal Lactone, Flow Injection Analysis, Andrographolide, Spectrophotometry



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Figure 1. FI configurations tested for andrographolide determination: (a) 3,5-dinitrobenzoic acid (b) potassium hydroxide; P, pump; I, injection valve; MC, mixing coil reactor; D, detector

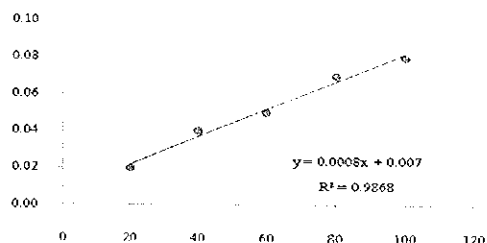


Figure 2. Calibration curve of andrographolide standard solutions

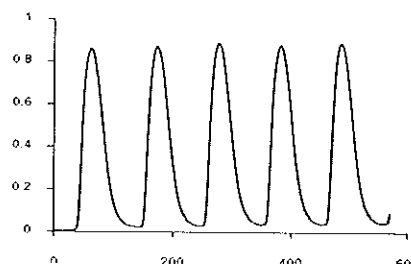


Figure 3. FI grams of andrographolide standard solutions

Table 1: The optimum conditions for the determination of andrographolide

Parameter Studies	Optimum
3,5-dinitrobenzoic acid concentration (%); (A)	0.25%
Potassium hydroxide concentration (%); (B)	0.70%
Flow rate (mL min ⁻¹)	1.0
Sample injection volume (mL)	50
Reaction coil length (cm)	30

Table 2: Analytical recovery of andrographolide added to andrographolide sample solution

Sample	Andrographolide Content (μg)	Recovery (%)
Sample No. 1	1.28	97.00
Sample No. 2	1.24	98.12
Sample No. 3	1.13	94.08

In this work a simple and fast system has been developed for the analysis of andrographolide using FIA system. The simple instrumentation, low flow rates and reagent usage means the system could easily be developed into a portable system with computer controlled pumping. The high sensitivity means that the system could be used for determining andrographolide in *Andrographis paniculata* Wall. ex Nees samples.