



## Development of a gas diffusion unit incorporating to flow injection analysis for determination of total cyanide in plant extract

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In this research, a gas diffusion unit incorporating to flow injection system with spectrophotometric detection was developed for selective determination of total cyanide in plant extract. The cyanide in sodium hydrogen carbonate solution was injected into the acid donor stream, then acid reacted with cyanide ion (CN<sup>-</sup>) to obtain cyanide gas. Furthermore, cyanide gas was diffused through the membrane and reacted with ninhydrin in the acceptor stream. The color product was flowed into home-made spectrophotometer and signal was monitored. The optimum condition was 0.5 mol L<sup>-1</sup> hydrochloric acid carrier (a donor stream) and 4 mg mL<sup>-1</sup> ninhydrin reagent (acceptor stream), with a flow rate of 0.55 mL min<sup>-1</sup> and detection wavelength of 505 nm. The calibration curve of total cyanide was constructed between log[CN<sup>-</sup>] versus peak height. It was linear in the range of 80 - 320 µg L<sup>-1</sup> and limit of quantification was 80 µg L<sup>-1</sup>. The proposed system was applied for determination of total cyanide in plant extract. This method is a user-friendly and safe for operator with the closed and semi-automatic system.

**Keywords:** Gas diffusion; Total cyanide; Plant extract