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**Novel strategy for fluorescence determination of glibenclamide in samples with high concentration of caffeine based on a low-pressure flow injection chromatography system**

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**Abstract**

In this work, a new low-pressure flow injection chromatography (FIA-C) system with fluorescence detection was developed for the toxicological control of glibenclamide in beverages with high caffeine content. As caffeine quenched the fluorescence signal of glibenclamide, a separation of the analyte from the sample matrix was proposed as a simple and rapid strategy. The separation was performed in a commercially available monolithic column (RP-18e, 25 mm×4.6mm i.d.) inserted in a flow injection system. The mobile phase used for analysis was acetonitrile/acetic acid (50:50 v/v), with a flow rate of 1.03 mL min<sup>-1</sup>. For each analysis, only 5.2 mL of mobile phase was used.

After the optimization of the variables of the system, a calibration curve with a linear range between 0.50-10.0 mg L<sup>-1</sup> was obtained ( $R^2 = 0.997$ ). The precision of the proposed method was evaluated in terms of the relative standard deviation obtaining 0.58 and 1.68 % for the intra-day precision and inter-day precision, respectively. The detection limit was 0.10 mg L<sup>-1</sup> and the sample throughput, taking into account the whole procedure, was 12h<sup>-1</sup>. The method was applied to fortified real samples with satisfactory recovery values (90.4-103.7%). On the other hand, samples adulterated with commercially GLB pills were also analyzed with very good results (96.5-104.5 %).

Keywords: Low-pressure flow injection chromatography system; Glibenclamide; Drug facilitated crime, Fluorescence; Caffeine; Energy drink

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