



## Liquid Chromatographic Method for Simultaneous Determination of Five Antineoplastic Drugs

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**SUMMARY.** Therapeutic importance and benefices caused by antineoplastic drugs are unquestionable however unfortunately well-known are their side effects. So, the extensive use and the exposure to multiple agents may be at risk to health care workers involved in the preparation and administration of these drugs. It is therefore important to have accurate methods for simultaneous analysis for evaluation of the occupational exposure. In this study, we have developed a method for simultaneous determination of 5-fluorouracil (5-FU), methotrexate (MTX), doxorubicin (DOX), cyclophosphamide (CP) and ifosfamide (IF). The assay was performed by HPLC-UV, detection in 195 nm, with a C18 column (250 x 4 mm, 5  $\mu$ m) with a similar guard- column. Mobile phase was constituted by water pH 4: acetonitrile: methanol (70:17:13, v/v/v) with a flow of 0.4 mL min<sup>-1</sup> up to 13 min and after this, 1 mL min<sup>-1</sup>. For cleaning of surfaces, we used a solution of acetonitrile: methanol (50:50, v/v). The method presented a linear calibration in a range from 0.25 to 20  $\mu$ g mL<sup>-1</sup>, for 5-FU and MTX and from 0.5 to 20  $\mu$ g mL<sup>-1</sup> for IF, DOX and CP, with correlation coefficients ( $r^2$ ) upper to 0.997. The repeatability, expressed in terms of percent relative standard deviation, was  $\leq$  10% and recovery was  $>$  70%, in surfaces contaminated with the analytes. The results obtained suggest that the method developed can be applicable for simultaneous determination of the five drugs studied and can be considered useful in exposure assessment.

**KEY WORDS:** Antineoplastic drugs, HPLC, Occupational exposure, Simultaneous determination.

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