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Spectrophotometric Determination of Paracetamol in Pharmaceuticals Using Microwave-Assisted Hydrolysis and a Micellar Medium

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***SUMMARY*. A new spectrophotometric method employing a micellar medium is proposed for the determination of paracetamol in pharmaceuticals. The method is based on the acid hydrolysis of paracetamol to p-aminophenol (PAP), which under acidic conditions reacts with p-dimethylaminocinnamaldehyde (p-DAC), producing a red compound (λ_{max} = 530 nm). This reaction can be enhanced five-fold in the presence of sodium dodecyl sulfate (SDS). The effects of all the parameters involved in both the hydrolysis step and the derivatization reaction were investigated using experimental design methodologies. The method presented a linear range of 0.2 to 3.9 μg mL^{-1} and an excellent correlation coefficient (r = 0.9996). The limit of detection was estimated to be 30.0 μg/L. The technique was successfully applied for the determination of paracetamol in commercial brands of pharmaceuticals. No interferences from the excipients commonly used in commercial formulations were observed, and the results obtained compared favorably with measurements made using the United States Pharmacopeia procedure, at a 95 % confidence level.**

KEY WORDS: Microwave, Paracetamol, p-dimethylaminocinnamaldehyde, Spectrophotometry, Surfactant.

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