

# Spectral study and simultaneous determination of sulfamethoxazole and trimethoprim by digital derivative spectrophotometry Estudio espectral y determinación simultánea de sulfametoxazol y trimetoprim por espectrofotometría derivada digital

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A direct and simple second derivative digital spectrophotometric method has been developed for the simultaneous determination of the sulfamethoxazole and trimethoprim in pharmaceutical formulation. A study of the spectral behavior of these drugs in different solvents is included, in order to select the best conditions for their simultaneous determination. Acetonitrile was used as solvent to extract the drugs from the pharmaceutical formulations and then to evaluate directly by second derivative spectra. This simultaneous determination was carried out by the zero crossing approach, at 272,8 nm for sulfamethoxazole determination and at 256,0 nm for trimethoprim determination. The determination range for sulfamethoxazole was from  $6,31 \times 10^{-8}$  to  $1,2 \times 10^{-4}$  mol/L and for trimethoprim from  $2,47 \times 10^{-7}$  to  $1,20 \times 10^{-4}$  mol/L, and the detection limits for sulfamethoxazole and trimethoprim were  $1,89 \times 10^{-8}$  mol/L and  $7,40 \times 10^{-8}$  mol/L, respectively. The method was applied successfully in pharmaceutical formula