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Reversed-phase liquid chromatographic method with UV detection for the determination of trans-resveratrol in human plasma using Catechin as an internal standard

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A simple and sensitive high-performance liquid chromatographic (HPLC) method was developed for quantification of trans-resveratrol in spiked human plasma employing liquid-liquid extraction. Catechin was used as an internal standard (IS). The present method used protein precipitation for extraction of trans-resveratrol from human plasma. Chromatographic Separation was achieved by employing a Phenomenex C18 column (250mm x 4.6 mm, 5 µm) and the column effluent was monitored by UV detector at 306 nm. The mobile phase consisted of a mixture of methanol and 0.01M pH being adjusted to 6.8 phosphate buffer (63:37%, v/v in Milli-Q water) with 0.5% (v/v) ortho phosphoric acid solution at a flow rate of 1.0 mL min^{-1}. This method was linear over the range of 50.0-6400.0 ng mL^{-1} with regression coefficient (>0.998). Nominal retention times of trans-resveratrol and IS were 3.94 and 5.9 min, respectively. Limits of detection (LOD) and Limits of quantification (LOQ) of trans-resveratrol were 9 ng mL^{-1} and 10 ng mL^{-1}, respectively. The method has been validated through a spiking/recovery procedure at three concentration levels. Results obtained are highly satisfactory, with recovery values around 98.372% for trans-resveratrol. Resveratrol was found to be stable for a period of 15 days on storage at -20°C. The method was found to be precise, accurate, and specific during the study.

Keywords: Catechin, human plasma, high-performance liquid chromatography, trans-resveratrol.

Derivative spectrophotometric methods for the determination of Zolpidem Tartrate

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Zolpidem tartrate is a non benzodiazepine hypnotic agent binds preferentially to one benzodiazepine receptor subtype ω-1 bezodiazepine-1 thought to mediate hypnotic effects. Zolpidem behaves as a sleep inducer without the muscle relaxant and anticonvulsant effects of the benzodiazepines. The hypnotic actions of Zolpidem, like benzodiazepine hypnotics, are mediated at the benzodiazepine recognition site of the GABA receptor complex. Two simple, rapid and sensitive derivative spectrophotometric methods were developed for the determination of Zolpidem tartrate in pharmaceutical dosage forms. A double beam UV-VIS spectrophotometer (UV-1800, Shimadzu, Japan) connected to computer loaded with spectra manager software UV Probe was employed with spectral bandwidth of 1nm and wavelength accuracy of ± 0.3 nm with a pair of 10 mm matched quartz cells. Method A was developed in 0.1N NaOH and the derivative absorbance was recorded at 253.93 nm (minima). Method B was developed in 0.1N HCl and the derivative absorbance was recorded at 248.86 nm (minima). Zolpidem tartrate follows Beer-Lambert's law over the concentration range of 1.0-30 µg ml^{-1} (r^2= 0.999) for Method A and 5.0-40 µg ml^{-1} (r^2= 0.999) for Method B respectively. The % RSD in precision and accuracy studies was found to be less than 2.0. The proposed methods were validated and can be successfully applied for the determination of Zolpidem tartrate in pharmaceutical formulations.