Determination of transdermal sildenafil in nude mouse skin by reversed-phase high-performance liquid chromatography

廖嘉鴻
Liaw J and Chang TW

Abstract

A simple and sensitive high-performance liquid chromatographic method was developed for the determination of sildenafil transdermal permeation of nude mouse skin. A reversed-phase column with UV detection at 224 nm was used for chromatographic separation. The mobile phase consisted of 32% acetonitrile with 0.2% phosphoric acid in water at pH 5.3 adjusted with 10 M NaOH with the flow-rate set at 1.0 ml/min. The limit of quantitation achieved was 5 ng/ml, and the calibration curve showed good linearity over the concentration range of 5-500 ng/ml. The relative standard deviations of within- and between-day analyses were all within 15%. Sildenafil was found to be stable between pH 3 and 12 during 24-h incubation with skin. After transdermal administration of 15.8 microg/ml of sildenafil to nude mouse skin, it was detected as early as 15 min. The transport amount of sildenafil could be quantitated and, at pH 8-11, had the highest permeation rate in nude mouse skin.