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Development of validated method for determination of glycyrrhizin content in anti-stress herbal formulations by HPTLC

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A simple and sensitive HPTLC method was developed and validated for quantification of glycyrrhizin in the marketed anti stress capsules (LRC) and herbal tea (HT) in this investigation. Chromatography was performed by using solvents including ethyl acetate (EA): glacial acetic acid (GAA): methanol (MeOH): water (H2O) in proportion of 6:2:2:1, v/v/v/v as mobile phase. The developed plate was scanned and quantified densitometrically at absorption maxima of wave length 254 nm. The method was validated for various analytical parameters viz. precision, accuracy, recovery, robustness, specificity, detection and quantification limits. The developed system was found to give compact spot for glycyrrhizin at Rf=0.33±0.001. The linearity relationship was described by the equation Y=6.841X+70.428. The limit of detection (34 ng band-1), limit of quantification (101 ng band-1), recovery (99.4-99.8%), and precision (≤1.84% and ≤1.62%; intraday and interday, respectively) were found satisfactory for glycyrrhizin. Linearity range for glycyrrhizin was found to be 100-1000 ng/band (r2=0.998). The amount of glycyrrhizin was estimated by comparing the peak area of standard and the same was present in crude extract of formulations. The content of glycyrrhizin was estimated as 11.4% and 4.7% w/w in sample LRC and HT, respectively. The difference of glycyrrhizin content in two samples indicates the dose of glycyrrhizin required in our body for two different states of depression i.e., mild or acute. To make sure the presence of therapeutic dose of active constituents in herbal formulations, the proposed method will be very useful. Thus the developed method can be used for the determination of glycyrrhizin in bulk drug to check the quality, as well as in marketed formulations to assure the quantity of glycyrrhizin. Further studies can be designed to analyze the bioavailability of glycyrrhizin in the plasma samples of treated animals by the developed method with HPTLC system.

Biography

Nasir Ali Siddiqui has completed his PhD in 2007 from Jamia Hamdard, New Delhi, India and currently working on deputation as Associate Professor in Department of Pharmacognosy, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia. His parent university is M.J.P. Rohilkhand University, Bareilly, UP, India where he was working as “Reader” before joining King Saud University in 2009. He has published more than 25 papers in reputed journals and has been serving as an editorial board member of repute. His area of expertise is isolation and characterization of natural compounds as well as analysis of natural products by HPTLC method.

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