ABSTRACT

A rapid, precise, sensitive and validated reverse-phase high performance liquid chromatographic (RP-HPLC) method was developed for the simultaneous estimation of aspirin, salicyclic acid, atorvastatin calcium and clopidogrel bisulfate in quaternary formulation. Upon utilizing time controlled three solvents gradient system, the drugs were well resolved on a 250*4.6, 5µ Merck C-18 column. Eluents were monitored at a wavelength of 250 nm using diode array detector with a mobile phase consisting of 0.2 M potassium dihydrogen phosphate buffer in Pump A (pH 2.5, adjusted with 85 % ortho-phosphoric acid) : acetonitrile and water (2:3) in Pump B in the ratio of (30:70 v/v) and 0.2 M potassium dihydrogen phosphate buffer in Pump A (pH 2.5, adjusted with 85 % ortho-phosphoric acid) : acetonitrile in Pump C in the ratio of (40:60 v/v). The linearity was observed in the concentration range of 2-700 µg/ml for atorvastatin calcium, 6-2100 µg/ml for salicylic acid, and 15-5250 µg/ml for aspirin and clopidogrel, respectively, with correlation coefficient 0.991 for ATR, 0.989 for SA, 0.990 for ASP and 0.991 for CLP. The limit of detection was 0.03, 0.9, 2.25 and 2.25 µg/ml for atorvastatin, salicylic acid, aspirin and clopidogrel, respectively. The limit of quantitation was 0.99, 2.97, 7.42 and 7.42 µg/ml for atorvastatin, salicylic acid, aspirin and clopidogrel, respectively The recovery was greater than 99% for aspirin, 98% for salicylic acid, 97% for atorvastatin and 98% for clopidogrel with RSD less than 3%. The total run time was less than ten minutes for the four components. The proposed method was validated by testing its linearity, accuracy, recovery, specificity, repeatability, LOD/LOQ values and it was successfully employed for the determination of aspirin, salicylic acid, atorvastatin calcium and clopidogrel bisulfate in quaternary formulation.