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Comparative evaluation of biomarker psoralenin antioxidant active extracts of different species of genus Ficus by validated HPTLC method

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A simple and sensitive HPTLC method was developed for comparative evaluation of psoralen in the antioxidant active extract of leaves of five different species of genus Ficus i.e. *Ficus carica, Ficus nitida, Ficus final, Ficus palmata* and *Ficus vest* grown in Kingdom of Saudi Arabia. The chromatography was performed on glass-backed silica gel 60 F254 HPTLC plates with green solvents toluene: methanol (9:1, v/v) as mobile phase. Scanning and quantification was done at 305 nm. The system was found to give compact spot for psoralen at Rf= 0.55±0.001. The linear regression analysis data for the calibration plots showed good linear relationship with r2=0.998 with respect to area in the concentration range of 100-800 ng. The regration equation of standard was found to be Y=4.516X+35.894. Psoralen was found only in two species of genus Ficus i.e. *F. carica* (0.24%, w/w)and *F. palmata* (1.88%, w/w) and it was found to be absent in the remaining three species i.e. *F. nitida, F. final* and *F. vest*. The maximum antioxidant activity among these species were shown by *F. palmata* (93.8% & 96.7%) and *F. carica* (56.6 % & 72.8%) in comparison to the other species i.e. F. nitida (27% & 40.9%), F. final(26.3% & 45.4%) andF. vest (11.5% & 28.2%) at low to moderate concentrations (50 &100µg/ml), however the standard ascorbic acid showed 86.4 and 95.5%, respectively. Since psoralen was reported to have antioxidant property hence from the findings of quantification of psoralen in different species of genus Ficus by validated HPTLC method, we can conclude that the presence of psoralen in *F. carica* (0.24%, w/w) and *F. palmata* (1.88%, w/w) might be responsible for their good antioxidant activity. It is suggested for the further study on the isolation of different antioxidant compounds and possible mechanism of action of psoralen in the antioxidant property of these species. Since, the given HPTLC method is simple, precise and specific; hence it can be employed for the further study of degradation kinetics of psoralen, determination of psoralen in plasma & other biological fluids and also its determination in the process as well as finished products available in the market.

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