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Identification and quantification of flavonoids and their glycosides for quality assessment of *Terminalia* species applying liquid chromatography hyphenated with mass spectrometric techniques

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Terminalia species are medicinal plants used in ethnomedicine and codified traditional medicine system. In this study, a rapid and sensitive analytical method was developed using reverse phase liquid chromatography coupled with quadrupole time of flight mass spectrometry (HPLC-ESI-QTOF-MS/MS) for qualitative analysis to find out array of flavonoids and their glycosides and the extent of variation in different plant parts viz. bark, fruit, leaf, root and stem of six *Terminalia* species (*T. arjuna, T. bellirica, T. chebula, T. paniculata, T. elliptica and T. catappa*). Separation was performed on a Thermo Betasil C8 column (250 mm×4.5 mm, 5µ). The mobile phase, which consisted of a 0.1% formic acid aqueous solution and acetonitrile, was delivered at a flow rate of 0.5 ml/min under the 55 min gradient program. 30 compounds were tentatively identified and characterized. Further, multiple reaction monitoring (MRM) method was developed for quantitative analysis of fifteen constituents using triple quadrupole-linear ion trap mass spectrometry (UPLC/QqQLIT-MS/MS) and validated as per international conference on harmonization guidelines. The separation was achieved on an ACQUITY UPLC BEH™ C18 column. Calibration curves for all the fifteen analytes provided optimum linear detector response over the concentration range of 0.5–1000 ng/mL. LOD, LOQ, precision and stability were found within the range. The methods established are simple and can be used as a tool for the quality assessment of pharmaceutical preparations containing these *Terminalia* species extracts. This protocol is useful for large scale screening of the plant materials for optimal utilization of the plant.

Biography

Awantika Singh is pursuing her PhD since July, 2011 from CSIR- Central Drug Research Institute, Lucknow and registered in Academy of Scientific and Innovative Research, New Delhi. She is Senior Research Fellow (University Grant Commission, New Delhi) and her topic of research is qualitative and quantitative analysis of Indian medicinal plants and their herbal products using liquid chromatography coupled with tandem mass spectrometry. She has published 10 research articles in the reputed journals.

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