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Identification and quantification of three xanthenes and two polyisoprenylated benzophenones simultaneously in fruit rind of eight *Garcinia* species via validated UHPLC-PDA method

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Statement of the Problem: Xanthenes and polyisoprenylated benzophenones (PIBs) are two significant classes of plant secondary metabolites with a wide range of bioactivities. *Garcinia* species synthesize numerous xanthenes and PIBs. Till now no method available is claiming simultaneous identification and quantification of three xanthenes, α -mangostin, β -mangostin, γ -mangostin, and two PIBs, xanthochymol, isoxanthochymol.

Methodology & Theoretical Orientation: A validated ultra-HPLC (UHPLC)- photodiode array (PDA) method for the simultaneous identification and quantification of five compounds in different extracts of eight Indian *Garcinia* species was developed. The compounds were separated on a Waters ACQUITY™ UPLC H-Class column using a mobile phase consisting of solvents 0.1% formic acid in water (A) and methanol (B) in gradient elution

mode. The total run time was 9 min.

Conclusion & Significance: From fruit rinds of eight Indian *Garcinia* species, namely *Garcinia cambogia*, *G. cowa*, *G. indica*, *G. loniceroides*, *G. mangostana*, *G. morella*, *G. pedunculata*, and *G. xanthochymus*, extracts were prepared using solvents of varying polarity. These extracts were analyzed for five biologically important compounds, namely α -mangostin, β -mangostin, γ -mangostin, xanthochymol, and isoxanthochymol. The results revealed that there is a wide variation in concentration of these compounds in extracts of *Garcinia* species. The developed and validated UHPLC-PDA method could be used for simultaneous identification and quantification of these five compounds for bioprospection of other *Garcinia* species.

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