An experimental approach to development and evaluation of hepatoprotective polyherbal formulation

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The mainstream of this research is to explore the pharmacological assessment of polyharbal suspension (PHS) for its hepatic defensive potential. Hydro-alcoholic fruit extracts of *Solanum xanthocarpum* Schrad. and Wendl (SXHE), & *Trichosanthes dioica* Roxb (TXHE) and whole plant extract *Hedyotis corymbosa* (L.) (HCHE) were inspected for hepatoprotective activity against simvastatin induced hepatic toxicity. The trituration method was used for formulating polyharbal suspension by preparing different fractions containing SXHE, HCHE, and TXHE with 0.5% w/v carboxymethyl cellulose as a suspending agent with other excipients. Hence, therapeutically four effective formulations were assigned *viz.*, F_{1E}, F_{2B}, F_{3C}, and F_{4H} and among all the formulations, F_{4H} has exhibited impressive hepatoprotective effect by reducing the elevated hepatic biomarkers and restoring the antioxidant enzymes. These biochemical observations were supplemented by histopathological examination of the liver. It has been observed that many allopathic and plant-based formulations represented minimal or negligible *in vivo* activity because of poor bioavailability, so to overcome these limitations, the developed polyharbal suspensions were further optimized by adding trikatu in different ratios and assigned the name as $F_{1E\beta}$, $F_{2B\beta}$, $F_{3C\beta}$, and $F_{4H\beta}$. Among all the optimized suspensions containing 30 mg/100 mL of trikatu extract, $F_{4H\beta}$ possessed maximum effective hepatoprotective and antioxidant potential in comparison to Liv-52 and silymarin treated rodents. So, the outcome of the present research indicated that the selected medicinal plants and their formulation possess better hepatoprotective and antioxidant activities.

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