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Synergistic Nephroprotective Effects of Terminalia chebula and Annona muricata in Mitigating Renal Toxicity in Zebrafish

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Objectives : The objective of this study was to evaluate the synergistic impacts of Terminalia chebula and Annona muricata extracts on kidney toxicity induced in zebrafish.

Methods : The method involved exposing zebrafish to gentamicin, followed by the administration of either vehicle or combination of both Terminalia chebula and Annona muricata extracts in different concentrations. Renal function parameters and histological analyses were employed to assess the protective effects.

Results : Results demonstrated a significant reduction in nephrotoxicity markers in zebrafish treated with the combined extracts compared to the control group. Terminalia chebula and Annona muricata exhibited dose dependent synergistic effects in mitigating kidney damage, as evidenced by improved renal function and reduced histopathological alterations associated with nephrotoxicity.

Conclusions : In conclusion, the study highlights the synergistic nephroprotective potential of Terminalia chebula and Annona muricata in alleviating kidney toxicity in zebrafish. These findings underscore the significance of exploring natural compounds for their combined therapeutic effects, providing valuable insights for the development of potential interventions against nephrotoxicity. Further research is warranted to elucidate the underlying mechanisms and validate the translational relevance of these findings in higher vertebrates, including humans.