

In vivo Genotoxicity Testing of Sesbania Grandiflora (Katuray) Flower Methanolic Extract

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Abstract : The booming interest in using natural compounds as an alternative to conventional medications has paved way to focus the attention on plants that provide rich sources of bioactive phytochemicals. For regulatory purposes, evaluation of the genotoxic effects of such alternatives is therefore empirical as part of the plant's hazard assessment. *Sesbania grandiflora* is among the plants used as a traditional remedy in folk medicine and a subject of research for its medicinal benefits. This study aimed to evaluate the genotoxic potential induced by *S. grandiflora* flower methanol extract (SGFME) in terms of the frequency of micronucleus (MN) in polychromatic erythrocyte (PCE) (MNPCE) and PCE ratio employing the micronucleus assay. The frequency of MN was examined in bone marrow cells (BMCs) obtained from male Swiss albino mice exposed in vivo to four different concentrations (11.25, 22.5, 40, and 90 mg/kg) of SGFME and MMC (70 mg/kg; positive control) and sacrificed 24 hours post-intraperitoneal injection. Results showed a significant ($p < 0.01$) rate of MNPCEs for 11.25 and 22.5 tested concentrations of SGFME and is comparable with the MMC-treated mice. Although PCE ratio values in all doses of SGFME-treated mice were over 0.20, it is worth noting that 40 and 90 tested concentrations of SGFME-treated mice exhibited the lowest value, i.e., 0.22 and 0.28, respectively. The present study has demonstrated that *S. grandiflora* possesses genotoxic potential for murine BMCs. Such activity could be ascribed from the bioactive compounds present in *S. grandiflora* that require further isolation and characterization of the active molecules. Likewise, findings of this study warrant a caution of the use of *S. grandiflora* insomuch as further investigations do not demonstrate their safety.

Keywords : genotoxicity, micronucleus, phytochemicals, *Sesbania grandiflora*

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