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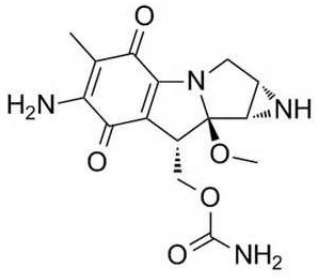
Phyllanthus emblica Linn. fruit extract potentiates the anticancer efficacy of mitomycin C and cisplatin and reduces their genotoxicity to normal cells in vitro

Key words: *Phyllanthus emblica*, Mitomycin C, Cisplatin, Genomic instability, Cytokinesis-block micronucleus assay

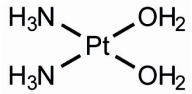
Graphical Abstract

***P. emblica* Linn.**



Mitomycin C

or

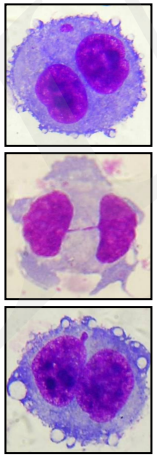


Cisplatin

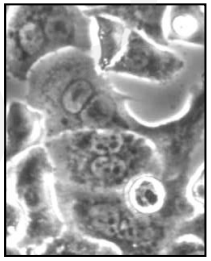
Growth inhibition of Colo205 cells ↑

Anticancer potential ↑

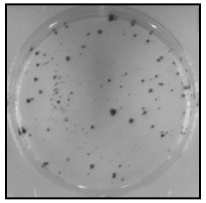
Genotoxicity to NCM460 cells ↓



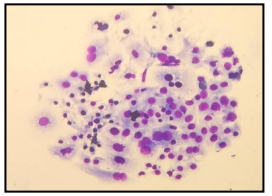
Genomic Instability ↓



Multi-nucleation ↓



Clonal expansion ↓



Intercellular heterogeneity↓

Risk of secondary cancers ↓

Innovation points

- PE enhances the antiproliferation potential of MMC and cDDP to Colo205 cells (Figure 1)
- PE reduces the genotoxicity of MMC and cDDP to NCM460 cells (Figure 2 and Table 1)
- PE reduces the frequency of multinucleated cells induced by MMC and cDDP in NCM460 cells (Figure 3)
- PE reduces the ability of clonal expansion in MMC- and cDDP-treated NCM460 cells and decreases the cellular heterogeneity in surviving clones (Figure 4)