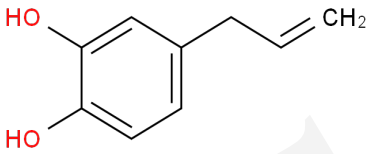
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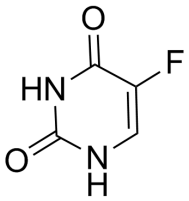
Hydroxychavicol, a polyphenol from *Piper betle* leaf extract, induces cell cycle arrest and apoptosis in *TP53*-resistant HT-29 colon cancer cells

Key words: *Piper betle*; Hydroxychavicol; Cell cycle; Apoptosis; JNK; P38 MAPK

Research Summary

This study aims to elucidate the anticancer mechanism of hydroxychavicol (HC) in *TP53*-resistant HT-29 colon cancer cells





	Hydroxychavicol	5-Fluorouracil
Cytotoxicity	IC_{50} (30 µg/ml) observed at 24 hours	IC_{50} (50 µM) observed at 72 hours
Effect on cell cycle	G0/G1 phase arrest from 12 hours onwards	G1/S arrest from 12 to 30 hours
Effect on apoptosis profile	Apoptosis occurred as soon as cell cycle arrest observed (at 12 hours)	Apoptosis occurred after 18 hours. Lesser apoptotic cell death compared to HC-treated cells.
JNK and P38 expression	Phosphorylation of JNK and P38 at 12 hours	No changes

Innovation points

- HC demonstrated potent anticancer effect than standard drug, 5-FU

- HC induces cell cycle arrest and apoptosis of HT-29 cells, and these actions are possibly mediated by JNK and P38 MAPK

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